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February 1944

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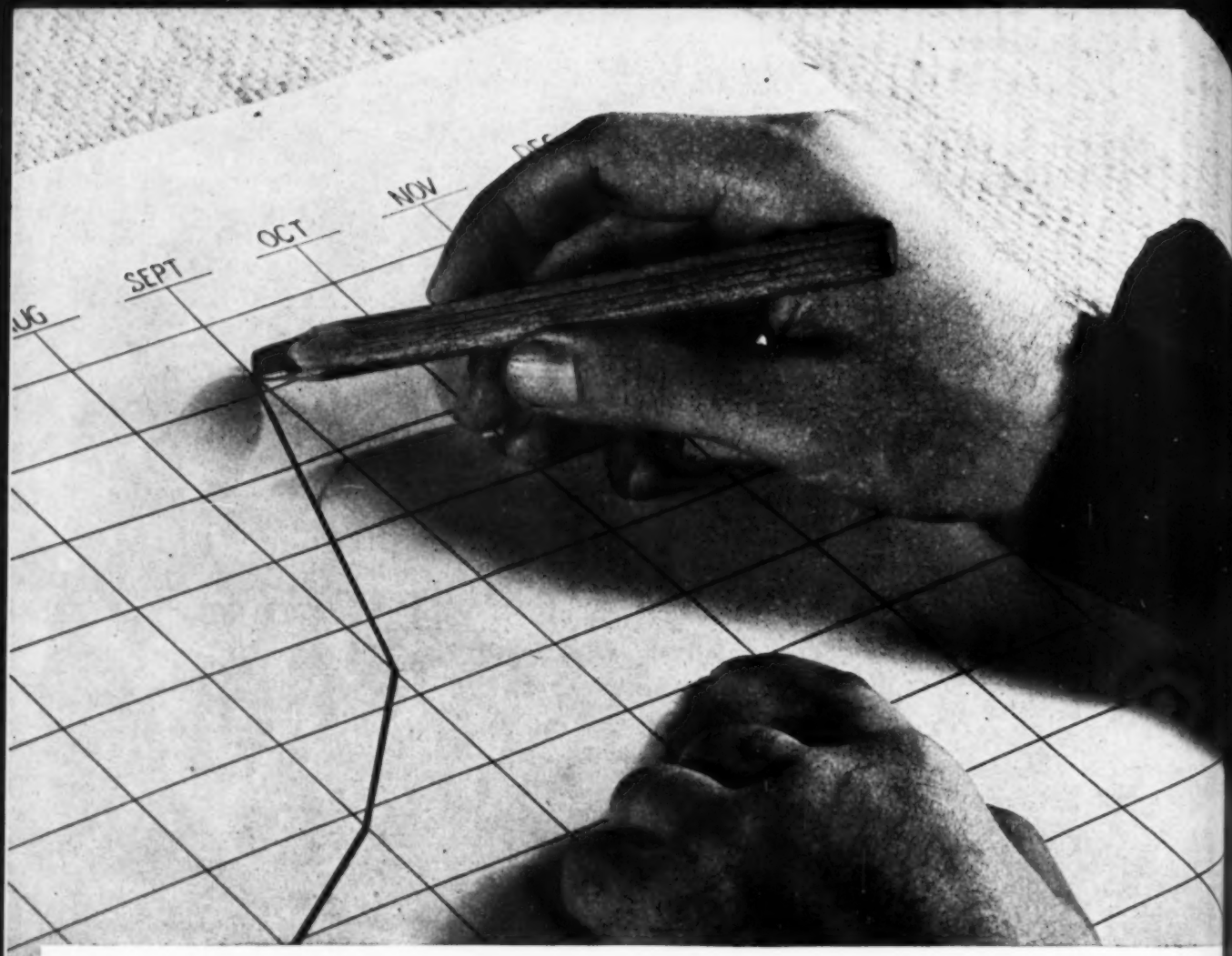

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Volume XX Number 2

SOAP and SANITARY CHEMICALS

Reg. U. S. Pat. Office

FEBRUARY
1944

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SANITARY Products Section, which forms a part of every issue of SOAP, Begins on page 75.

MEMBER AUDIT BUREAU OF CIRCULATIONS

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254 WEST 31st STREET NEW YORK, N. Y.

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a Package by Ritchie is an active selling force . . . a product-identifying, eye-appealing package that people see, ask about, reach for . . . a package that SELLS.

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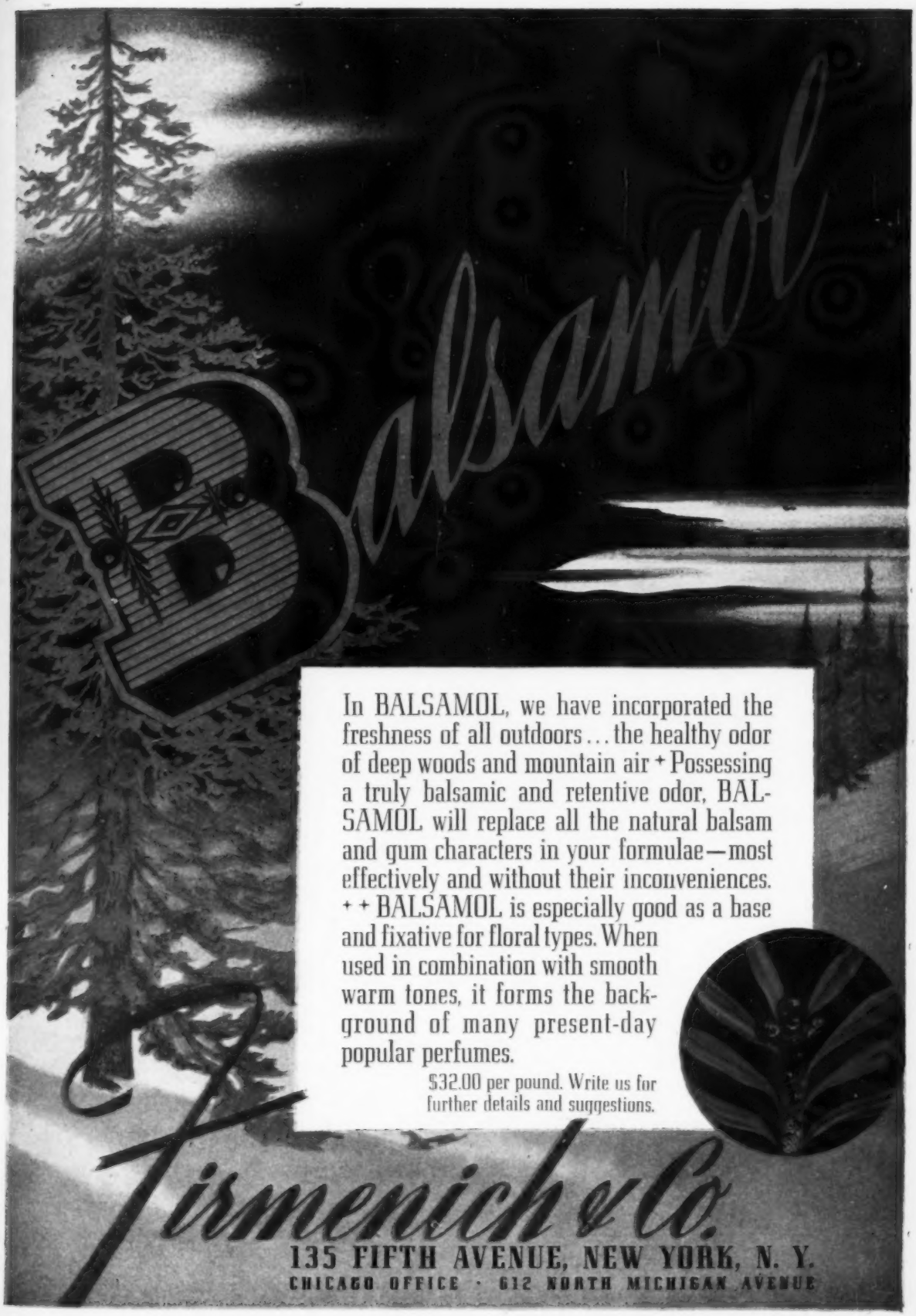
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You'll find all four species in almost every city. SPOO kills them all. It clings to their flattened, horny bodies and large spiny legs. The roach assassinates himself when he tries to "lick" it off . . . He is a dead roach if he doesn't. SPOO KILLS ON CONTACT—*in seven minutes!*

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BENZENE PRODUCTS QUIZ

FOR SOAP AND INSECTICIDE CHEMISTS

Q. What are the names of three benzene products effective as insecticides?

A. Orthodichlorbenzene. Paradichlorbenzene. Trichlorbenzene.

Q. Which two benzene products are different forms of the same chemical, $C_6H_4Cl_2$?

A. Orthodichlorbenzene, a clear, colorless liquid; Paradichlorbenzene, a white, crystalline solid.

Q. Which benzene product is a solvent for fats and oils as well as an insecticide?

A. Trichlorbenzene 1:2:4, $C_6H_3Cl_3$.

Q. Which two of these three benzene products is used as an effective insecticide against termites?

A. Orthodichlorbenzene and Trichlorbenzene.

Q. Which is used as an insecticide for clothes moths?

A. Paradichlorbenzene.

Q. Which is used as an insecticide for powder post beetles?

A. Orthodichlorbenzene.

Q. Which is used as a soil poison to eradicate termites?

A. Trichlorbenzene.

Q. Which is used as an insecticide for the peach tree borer?

A. Paradichlorbenzene.

Q. How many of these products are made by HOOKER?

A. All three.

Q. In what type of containers are these HOOKER products supplied?

A. Orthodichlorbenzene, 5 gal. cans containing 54 lbs., 55 gal. drums containing 600 lbs; Paradichlorbenzene, Fibre drums containing 25, 50, 100 and 200 lbs., Trichlorbenzene, 5 gal. cans containing 60 lbs., 55 gal. drums containing 650 lbs.

No matter what your score on this quiz may be, your score in selecting quality chemicals will be high, when you use products made to HOOKER standards.

Send for list of principal HOOKER chemicals, including most of those used in the soap and sanitary chemical industries. Write Dept. S.2.

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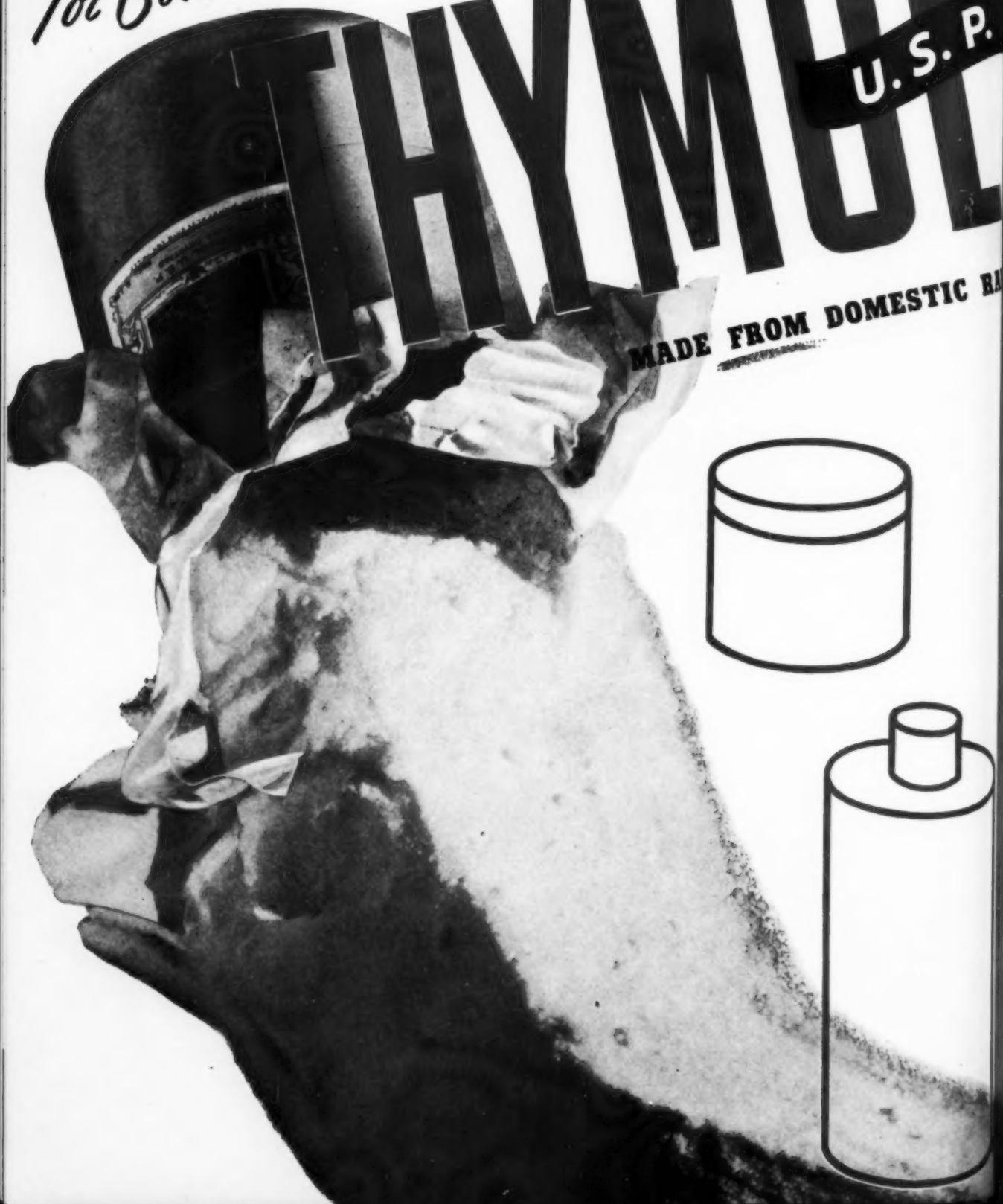

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At a time when the demand is for both *quality* and *quantity*, Givaudan is proud to be able to supply a THYMOL (U.S.P.) to fill essential needs.

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Givaudan-Delawanna, Inc.

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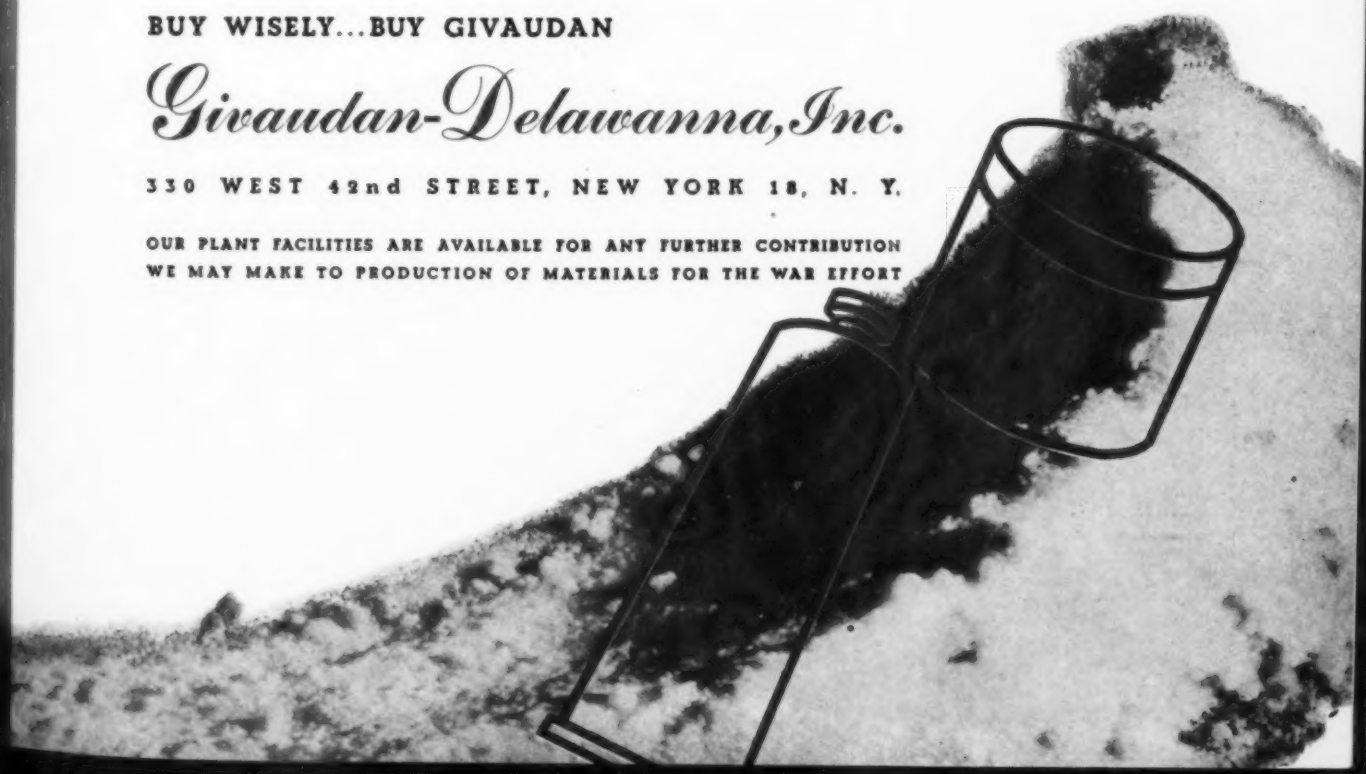

SANITARY PRODUCTS

their manufacture, testing and use

By Leonard B. Schwarcz

CONTENTS

Sanitary Products Industry — reviewing the type firms in the industry, the products they manufacture, and their annual value.

Discovery of Bacteria—historical background on the germ theory of infection.

Principles of Disinfection — the role of chemical preparations in disinfection; definition of disinfectant terms.

Coal Tar Disinfectants—a review of their manufacture and use.

Cresol Compounds — Liquor Cresolis Compositus, B.A.I. Compound, petroleum-type cresylics.

Pine Oil Disinfectants—manufacture, properties and uses.

Hypochlorites—manufacture, properties and uses of chlorine disinfectants.

Formaldehyde—its applications in the disinfectant field.

Oil Soaps—manufacture, sale and use of jelly soaps, green soaps, auto soaps, floor scrubbing soaps, etc. Special attention is given to manufacture of oil soaps from fatty acids.

Liquid Soaps—The case for liquid soaps for washroom use. A review of raw materials, manufacturing methods, use, etc., with special attention to the problems of clarity, concentration, dispensing equipment, etc.

Soap Dispensers—a review of the common types of liquid and powder soap dispensers, push-in, push-up, tilt, goose-neck, pullman, etc.

Floor Waxes—A review of raw materials for floor wax manufacture and a study of manufacture and application of liquid waxes, paste waxes, water-emulsion waxes.

The Insect Problem—A review of the general role which insecticides must fill in man's battle against the insect world.

Pyrethrum Insecticides—The important place that pyrethrum has taken in the manufacture of non-poisonous insecticides. Manufacture, testing and use of pyrethrum insecticides are reviewed.

Rotenone Materials — Occurrence and toxicity of rotenone, and its use as an insecticidal raw material. Comparisons with pyrethrum on toxicity and deterioration.

Synthetic Insecticides—The most complete review yet published of the chemical nature, characteristics, and use in insecticides of a dozen synthetic materials.

Activators—The action of activators in stepping up insecticide toxicity. A study of activators which are in current use.

Roach Control — Roach powder formulation. The role of sodium fluoride and borax.

Bedbug Liquids—Control methods and special preparations.

Livestock Sprays—Manufacture and use of cattle sprays, with particular emphasis on repellency, application and choice of oil base.

Sprayers—A review of hand, continuous and electric types. Applicators for aerosols are also discussed.

Moth Preparations — Use of paradichlorbenzene, naphthalene, cedar preparations, etc., in moth control. Cautions on labeling.

Deodorant and Urinal Blocks—Para vs. naphthalene blocks. Pressed vs. molded blocks. Perfuming, wrapping, etc.

Labeling and Packaging—The most complete review ever published of the obligations of the sanitary products manufacturer under the Insecticide Act of 1910, The Caustic Poisons Act, The Federal Trade Act, the Food, Drug and Cosmetic Act and the various state laws. Typical decisions of the AMA and the FDA in reviewing offending labels are presented, along with sample labels of approved content.

Appendix—Complete text of Insecticide Act of 1910, Caustic Poisons Act, Peet-Grady Test for Insecticides, FDA Method for Disinfectant Testing, Mercury Reduction Method, Seil Method, NAIDM Specifications, list of approved antidotes.

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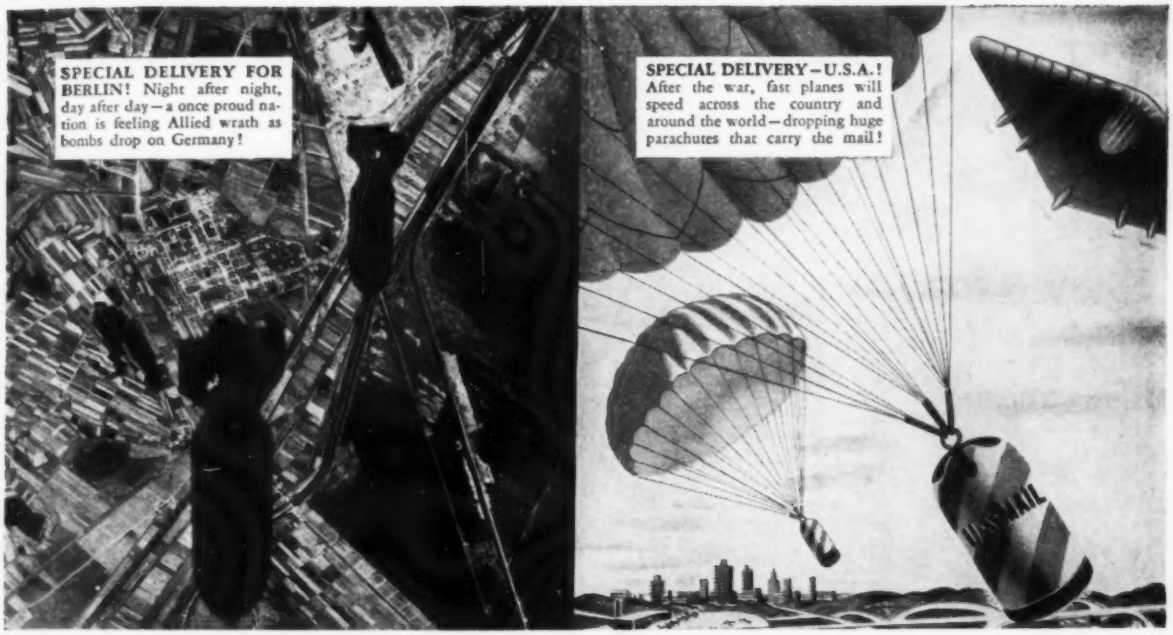
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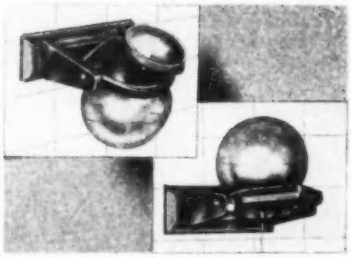

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Fool-proof, trouble proof, cannot leak, clog or get out of order. Easily filled. Sturdy and neat in appearance. Glass globe thick and clear. Bracket and cap finished in fine black lacquer.

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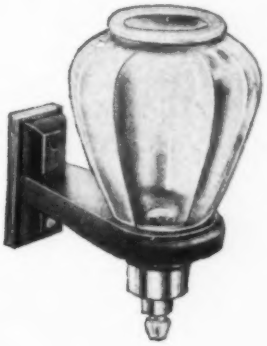
Same sturdy, fool-proof construction as the DENDRON TILT. No intricate mechanisms to get clogged or out of order. Easy to clean and fill. Made from high tensile strength composition in high gloss black lacquer finish.



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We are also headquarters for a full line of soaps and sanitary products, including liquid soaps and bases, disinfectants, vegetable soap cleansers, deodorizing blocks, polishes, etc. It will pay you to investigate Clifton's complete facilities for handling the requirements of the bulk or private brand buyer.

Clifton Chemical Company

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SOAP presses that are worn out, or outmoded during the War, cannot meet postwar competition.

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AS THE EDITOR SEES IT

ESTIMATES in and about the soap industry give an approximate figure of 2,100,000,000 pounds of oils and fats as the total requirement for American soap manufacture during 1944. This much fat should make up into about four billion pounds of soap, the amount which it is believed will be needed to fill all soap needs, civilian, military and lend-lease. Close to 300,000,000 pounds of fats and oils will go into the production of about twice this poundage of soap products for military and lend-lease requirements. This leaves some 1,800,000,000 pounds of fat to make 3,400,000,000 or 3,500,000,000 pounds of soap for the civilian population, or about 26 pounds per capita which is believed to represent present rate of consumption.

The present visible oil and fat supply for soap manufacture for 1944 is stated to be roughly 1,900,000,000 pounds of the usual soap fats from all sources. This shows a gap of some 200,000,000 pounds in round numbers under the estimated required total of 2,100,000,000 pounds. To make up this deficit, reports from Washington indicate that it may be necessary for soapers to use linseed and castor oils, both of which find themselves in rather heavy supply this year on the American market. If these two vegetable oils, heretofore finding little or no use in soap manufacture, particularly regular soda soap manufacture, can be worked into the soap kettle in ample quantities, there will be no difficulty in closing the estimated gap of 200,000,000 pounds.

That all soap manufacturers may be compelled by War Food Administration order to use a minimum of fifteen per cent of castor and linseed oils as a part of their overall fat consumption in the near future has been discussed quite freely in Washington and throughout the soap industry. Soap manufacturers are quite frank in expressing their opposition to any enforced use of these oils, particularly linseed oil. Unless hydrogenated, they feel that it has no place in or near a soap kettle. They maintain that even a small percentage of linseed can jeopardize large batches of soap in which it may be used. In finely divided types of soaps, such as granules, powder and chips, they hold that linseed will quickly go rancid and develop a bad odor no matter how highly refined is the original oil. They state further that no part of linseed could be used in toilet soaps or high-grade chips or flakes, and this would mean a percentage higher than fifteen in other types of soaps produced in the same plant which would increase the risk proportionately in these latter soaps.

In short, soap makers, except those who produce certain specialties where its use has always been acceptable, want no part of linseed oil in their products,—and intend to fight any edict in this direction,—unless oil for the soap kettle can be hydrogenated. This, naturally, brings up the question of plant facilities for linseed hardening. One estimate, which admittedly may be to some degree wishful thinking, gives a figure between 100,000,000 and 150,000,000 pounds per annum of facilities which might conveniently be converted to linseed hydrogenation at present. Another estimate places the total hydrogenation capacity of the United States at nine million pounds per day. Calculated on a basis of a 300 day year, this gives 2,700,000,000 pounds total of which 700,000,000 is stated to be inedible. Owing to the heavy hydrogen consumption needed in hardening a highly unsaturated oil like linseed, this latter estimate questions that there could be made

available at this time facilities for hardening even 100,000,000 pounds of linseed oil.

To the problem of hydrogenation facilities, there is also added the matter of the cost of linseed hardening, not to mention the original high cost of the oil compared to other vegetable oils and fatty acids. It does not seem unlikely that by the time extra handling and hydrogenation were completed, the hardened linseed would show a cost over sixteen cents. In the light of the present O.P.A. attitude toward soap prices, this might be a very serious obstacle even to the use of the amount of linseed oil indicated.

The findings of the Soap and Glycerine Advisory Committee of the War Food Administration which recently completed a study of linseed oil in connection with the over-all oil and fat supply for the soap kettle, and its recommendations will be awaited with considerable interest by the soap industry.

FEAR that currently large glycerine stocks might take a toll in the fat salvage drive and leave the campaign without a strong peg on which to hang its publicity and advertising has been expressed by members of the industry. Glycerine is just as vital in our war economy whether there is an excess or a scarcity. The salvage drive has taken over a year to get under way on its present basis. It cannot be turned off and on like a water faucet. More it is like a warship where steam must be kept up ready for use when needed whether the vessel is under way or at dock. Glycerine stocks may be flush today, but who knows what they will be six months hence? Our feeling is rather strong on the point that any let-up in the full-speed-ahead fat drive now, after taking a year to reach the present rate of collections, would be very shortsighted. As for a peg on which to hang advertising and publicity to the general public, we feel that with less emphasis on scarcity and more on the life-saving features of glycerine, the present peg will do very well until a new one has to be found.

A YEAR ago, we hazarded a guess that the oil and fat productivity of the United States, particularly under the impetus of war demand and a ready market, was considerably greater than any of the estimates of the Washington bureaus made at that time for 1943. When the complete figures for last year are released, we have a hunch that they will bear us out. In the case of soap production for 1943, we also believe that our much higher estimates than those which came out of Washington will be proved to be nearer correct. Glycerine production over the last half of 1943 in itself would seem to indicate this.

It is this large potential American production of oils and fats, at present operating in high gear, which poses a post-war problem for the soap industry. For a time at least, production of oils and fats after the war will continue heavy and exceed normal needs,—even considering large tonnages which may be required for export in the beginning to feed European populations. Prices for domestic fats are likely after the first year of peace to decline sharply from current levels. Agitation for higher tariffs and higher processing taxes on foreign oils, including high lauric acid oils so necessary for soap manufacture, is very likely from farm and crushing interests. Naturally, they are not going to sit idly by and see their war-time gains swept away.

All things being equal, American soapers will always be better off with strong domestic oil and fat producing industries. War has again emphasized this fact. But this is not a reason to penalize those oils, notably the lauric acid group, which must come from outside. If they are not on guard, soapers may find that post-war readjustment of economic conditions, particularly in the world oil and fat markets, will again leave them holding the bag.

SOAP INDUSTRY MEETING

SOAP makers may very possibly have to turn to use of linseed and castor oils before the end of 1944, to supplement stocks of normal soap making fats and oils, members of the industry were told at the annual soap industry meeting held at theWaldorf-Astoria Hotel, New York, January 21. "By the use of these oils," counseled Dr. C. W. Lenth, chief of the Soap and Glycerine Division, Fats and Oils Branch of FDA, "the overall (fat and oil) picture will be considerably aided, and more drastic measures may be avoided."

"Under the present quotas," he told soap makers, "you are doing a fine job of distributing your products in the face of an unprecedented consumer demand. In spite of your good work, however, it is probable that any substantial change in quotas would make your task almost impossible. Consequently, it seems to us the choice really lies in your hands, since the materials are available from which soap can be made if you choose to employ them."

Partially offsetting this rather non-optimistic view of the raw material outlook was the word from OPA that availability of soap in retail channels continues to show steady improvement. Soap makers were told that the fat salvage campaign is currently bringing in fats for the soap kettle at the rate of 255,000,000 lbs. per year, and were congratulated by various government representatives on their foresightedness and generous financial support in making the campaign a success. They were also complimented by OPA representatives on their voluntary action in so planning distribution of soaps over the past year that serious shortages in consumer markets have been avoided.

At the annual meeting of the Association of American Soap and Glycerine Producers, held in connection with the industry meeting, E. H. Little of Colgate-Palmolive-Peet Co. was re-elected president of the association, Gordon Fulton of Beach Soap Co. was elected Eastern vice-president, R. R. Deupree of Procter & Gamble Mid-west vice-president and A. Haas of Newell-Gutradt Co., Western vice-president. N. S. Dahl of John T. Stanley Co. was re-elected treasurer, and manager Roscoe C. Edlund, secretary. New directors elected to the board include Homer D. Banta of Iowa Soap Co., Oscar M. Burke of Manhattan Soap Co. and Daniel M. Flick of Armour & Co. Other members of the board were re-elected.

In opening the annual industry meeting E. H. Little reviewed the record of the past year and paid tribute to the contributions which the association and the industry have made to solution of the problems that have been faced. He singled out for particular attention the record that the industry has made in efficient distribution of shortened soap supplies, its education of the pub-

E. H. LITTLE
. . . re-elected president.

GORDON FULTON
. . . eastern vice-president.

A. HAAS
. . . western vice-president.

R. R. DEUPREE
. . . mid-west vice-president.

ROSCOE EDLUND
. . . manager and secretary.

lic on the necessity for and the mechanics of soap conservation, and the contributions the industry has made to increasing the national fat supply through the fat salvage campaign. Mr. Little predicted a continuing need for fat salvage for some time after the European war is ended. In the post-war period he indicated that a high rate of soap consumption can probably be expected to continue. See page 37 for full text of Mr. Little's address.

Roscoe Edlund, manager of the soap association, then took over direction of the meeting to introduce a group of government speakers, first of whom was Leon Falk, Jr., chief of the Fats and Oils Branch of the Food Distribution Administration. Mr. Falk pointed out that while American fat and oil producers have been able, as a result of bumper crops in 1942 and 1943, to solve the fat deficiency resulting from loss of some of our principal foreign sources of supply, we are still under the necessity of husbanding our stock piles as an insurance against possible crop failure during the coming season.

Reviewing some of the international aspects of the fat and oil picture, he called attention to the orderly marketing of world fat and oil supplies that has been achieved by the fat buying pool operated jointly by Great Britain, Canada and the United States. Through the operations of this combined food board the United States has been allocated considerable quantities of high lauric acid oils such as coconut. In return we have agreed to export lard and other edibles, which have been in oversupply in this market. He reviewed the Washington set-up on oil and fat allocation, showing how supply and demand are reconciled and giving the group an idea of the mechanics behind the finished allocation orders which they eventually see. He reminded that these government orders must be designed to fit the average of the industry, and indicated government willingness to relieve cases of "undue hardship" resulting from imposition of these orders.

The next speaker was Dr. C. W. Lenth, chief of the Soap & Glycerine Division, Fats and Oils Branch of FDA. He indicated the probability of a deficiency in our normal soap fat supplies this year. To plug this gap he suggested that it may become necessary to require use in soap of minimum quantities of linseed and castor oils which are currently in a rather favorable stock position. He mentioned that in England as high as 20 per cent linseed oil is being used in some soaps, and reported that in certain potash soaps, provided the proper grades are selected, the substitution of linseed oil presents no particular problem. For use in soda soap linseed oil must be hydrogenated, and the Soap and Glycerine Division is now surveying hydrogenation facilities of the country to determine what quantities might be handled. An industry task committee has been named to study the pricing problems which might arise as a result of substitution of this higher cost raw material, and the attention of the O PA has also been directed to a study of possible relief they might be able to afford the industry should this substitution become necessary.

Dr. Lenth indicated that while the outlook for the year anticipates the possibility of a deficiency in fat and oil supplies, this same prospect does not apply for the first quarter. He indicated that 518,000,000 lbs. of fats and oils are needed for soap manufacture in the first quarter, 448,000,000 lbs. of this total for civilian soap, and the balance for military and export needs. To meet this demand, adequate supplies of fats and oils have been allo-

N. S. DAHL
. . . re-elected treasurer.

cated: 315,000,000 lbs. of tallow and grease, 45,000,000 lbs of coconut oil, 40,000,000 lbs. of foots, and 120,000,000 lbs. of other oils including vegetable oils, fish oils, lard and edible tallow. The need for fats and oils for manufacture of soap for rubber and textile purposes is not included in the above figures, this demand being taken care of by separate allocations.

In commenting on problems that have arisen in connection with some of the new FDA orders, Dr. Lenth indicated that his office is taking a sympathetic view toward definite "hardship" cases. Some requests have been received, he indicated, for quota revision under FDO-42, to allow for a certain amount of switching back and forth betwen quotas for different types of soap. An amendment to relieve such cases is under consideration which would provide for a small amount of switching from one class to another. Appeals to even out quarterly fat and oil quotas, to allow the appealing soap maker to make more stable and efficient use of his available labor supply, are also being given favorable consideration, Dr. Lenth advised. Problems have also arisen, he reported, in the enforcement of the inventory provisions of FDO-86. Some consumers whose inventories were perhaps oversized on some items, while deficient on others, had to be given relief.

Turning from raw materials to prices, the OPA was represented at the meeting by William L. Sims, chief of the Chemicals and Drugs Branch; E.

RUSSELL YOUNG
. . . potash soap section chm'n.

W. Ranson, head of the OPA Soap and Glycerine Unit, and Walter F. Straub, Director of Food Rationing. Mr. Sims reviewed the record that OPA has made in preventing the drastic price rises which were common during the first World War. He predicted a continuing need for OPA price controls during the post-war period.

Mr. Ranson previewed the price problem which would arise for soapers and the OPA as a result of possible substitution of linseed oil for less expensive fats in soap formulas, and indicated that OPA is moving now to give consideration to this problem. He observed that OPA wants to keep soap makers in business to make sure that there will be no interruption in needed soap supplies. In answer to a question from the floor regarding necessity for filing reports with OPA on formula changes, he made clear that, under the law as it now stands, all formula changes must be reported to OPA even though they do not involve any decrease in anhydrous soap content. Consideration is currently being given, however, to the possible desirability of discontinuing such mandatory reports except when there is a change in anhydrous soap content.

Walter F. Straub complimented the industry on the job that it has done on a voluntary basis over the past year in working out its own rationing plan for soap buyers. Recent OPA spot checks, Mr. Straub indicated, have shown growing availability of common brands of soap in retail outlets.

H. M. Faust, head of the WPB Salvage Division, introduced the subject of fat salvage with a review of the general salvage program which his division has worked out, and its important contribution to war production. Details on the fat salvage program itself were supplied by Wilder Breckenridge, Kenyon & Eckhardt advertising agency executive, who is managing the American Fat Salvage Drive for the soap industry. In the first eighteen months of operation of the fat salvage campaign, which started in August, 1942, some 244,000,000 lbs. of used fat were salvaged. In June, 1943, a peak salvage rate of 201,000,000 lbs. per year was reached. Recent announcement of the "points for fats" program boosted December collections to a new peak rate of 255,000,000 lbs. per year. For the early weeks of 1944 collections were reported being made at an even higher rate, more than doubling previous totals, and giving hope that the campaign will produce 300,000,000 lbs. of reclaimed fats during the course of 1944. If this higher total is reached, fat salvage will be supplying approximately 15 per cent of 1944 soap fats.

HERBERT KRANICH
. . . potash soap vice chm'n.

Potash Soap Section

RUSSELL YOUNG of Davies-Young Soap Co., Dayton, chairman of the Potash Soap Division of the AASGP, presided over a special morning session of that group which preceded the general industry meeting. Roscoe Edlund addressed the group briefly, and the balance of the session was taken up with a question and answer period during which Dr. C. W. Lenth of the FDA and E. W. Ranson of the OPA answered some of the current questions in interpretation of government regulations of the potash soap industry.

On a question dealing with the necessity of recovering glycerine from high lauric acid oils, regardless of exemption privileges, Dr. Lenth indicated that where coconut oil has been acquired before the first of the year, it was with the understanding that the glycerine must be recovered. On high lauric oils received after the first of the year, the soap maker may include these shipments in his 150,000 lb. quarterly exemption.

In response to another question he clarified the picture on carryovers from one quarter to another. Quotas must be filled before any carryover from the preceding quarter may be used. Therefore, if there is a carryover from the first quarter into the second, there cannot be any from the second into the third, since the second quarter quota will have been filled and it is not permissible to carry over beyond one quarter. The effect of this is that it is possible to use a carryover only every other quarter.

Explaining the recent easing of the glycerine recovery restrictions, Dr. Lenth mentioned that the new modifications free an additional approximate fifty per cent of the industry from the necessity of recovering glycerine, yet entail a loss of only approximately 2½ per cent in the volume of possible recoverable glycerine. As under previous rules approximately a quarter of the industry was free from the necessity of recovering glycerine, the new

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ESSENTIAL OIL PRICES

A SHARP drop in production of domestic essential oils, and an impossible position pricewise in which dealers' raw material costs are above the government ceilings at which they are supposed to sell, have currently come to the front as two of the most striking results of application of OPA price controls to the essential oil market. So serious has this situation become over recent months that a meeting of essential oil dealers was called in New York last month by OPA representatives in hopes of discovering some sort of a solution for the badly tangled situation.

The principal essential oils that have been affected are peppermint, spearmint, cedar leaf, cedarwood, wormwood, wormseed, birch, spruce, hemlock, sassafras and erigeron. Of this list, peppermint, spearmint, wormwood and wormseed oils are cultivated oils which are produced on a more or less regular annual crop basis, while the other oils, commonly spoken of in the trade as "country oils" are harvested and brought to market more or less haphazardly by farmers, depending on how busy the farmer may be at the time and how profitable or unprofitable his principal crop may be that particular year. Thus a producer's output of cedarwood oil might be several hundred pounds one year, and nothing the next. Whether or not he will produce any of this secondary crop at all, depends largely upon what incentive there is for him to produce.

The two basic difficulties that have contributed to building up the present impasse are the lack of labor on the farm, and the unattractive price levels that have been imposed on domestic essential oils output. Every farmer has experienced a loss of his farm labor to the war plants with their higher wage levels, and essential oil producers have shared this same problem. Men who two or three years ago were bringing in the cedar crop are today working in aluminum factories; and the short labor supply left on the average farm is busy bringing in more profitable crops than domestic essential oils have proved to be at the prices that have been fixed by OPA. To contribute further to the short supply situation, poor yields have resulted this year on all of the cultivated oils except spearmint. In the cases of peppermint, wormwood and wormseed, it is reported that normal acreage was planted, but yields have been so poor that the crops were far below normal in quantity.

In this situation of shortened supplies, the OPA regulations which have controlled essential oil prices since the issuance of GMPR have been put to a very severe test. Under the test they have broken down badly. As long as stocks were good and crops were adequate to take care of demand, the OPA price ceilings functioned very well, it is reported. With pre-war stocks exhausted, and current crops a failure, the OPA program of ceilings for dealers, and no ceilings for growers, simply cannot work. Thus, essential oil dealers, who must pay producers $2.50 a pound to get cedarleaf oil, and who may not, by OPA rule, sell it above $2.00 a pound, face an obviously impossible situation. The result has been that dealers who adhere to ceilings are unable to obtain supplies of domestic oils. Producers are reported selling either direct to consumers at "black market" prices above ceiling levels, or in some cases, perhaps, to dealers who are violating ceiling prices on their resales.

In an effort to relieve this "squeeze" on essential oil dealers, an industry meeting was called in New York last month by OPA at which suggestions were asked from the trade as to how the situation might be adjusted. At this session, presided over by R. G. Deupree, head of the Drugs & Cosmetics Unit of OPA, a number of other complaints were registered by various members of the local trade. It was pointed out, for instance, that some definition of "dealer" is called for if any equitable enforcement of OPA regulations is to be obtained. New names have suddenly appeared as "dealers," insistent that they are entitled to sell at

Domestic production of such essential oils as cedar, sassafras, peppermint, wormseed, etc., has declined severely under OPA price control. Dealers report that present ceilings discourage farm producers, whose asking prices are in many cases higher than figures at which dealers are allowed to resell. Photos courtesy of Fritzsche Bros.

In domestic oils, OPA ceilings stifle production and create a badly scrambled market situation

the ceiling prices to which dealers are entitled. The counry dealer who markets the essential oil produce of some half dozen or more local farmers would not seem equitably to be entitled to the same price differential accorded to the recognized essential oil firm that processes and stocks a wide range of perfuming materials, yet OPA price regulations on peppermint have allowed this situation to result. Definition of the term "dealer" on a historical basis was suggested, with ability to qualify being based on how long a firm had been in business, capital investment, etc.

As to the difficult price situation, a number of suggestions were offered, all accenting the fact that some elasticity is currently required in the OPA controls. One suggestion which seems to present possibilities was that dealers be allowed to sell at fixed percentages above their own costs. It was pointed out, however, that a differential in the neighborhood of 50 cents per pound on a $5 or $6 oil is not sufficient margin for the average dealer. He must allow for various losses and expenses, for weight differentials, cost of container and container return, freight, cash discount, commission, interest on investment, and other such factors. It was indicated that a margin of 12 to 15 per cent above the dealer's cost would be necessary to cover these costs and allow him even a minimum profit.

Another suggestion was that the OPA might take off its essential oil price ceilings completely, with the proviso that ultimate consumers sign agreements not to raise the prices of their manufactured products because of any higher prices that this might result in their paying for essential oils. Just such a program as this has been adopted by OPA on botanical drugs, first because of the complications in applying price ceilings, and second because of the necessity of providing some stimulus for increased production. It was indicated by OPA representatives, however, that they were skeptical as to the advisability of relaxing price ceilings on additional items until they have an opportunity to study just how price control exemption for botanicals works out. Such treatment for "country oils" like cedarwood, spruce, etc., would, incidentally, seem to be in order, as they are gathered on exactly the same basis as botanical drugs.

In any case, release or at least raising of the price ceilings would seem to be essential to encourage production and to relieve the essential oil dealers from the present impossible conditions under which they are trying to operate. Shortage of imported oils and increased dependence on domestic production would seem to provide further strong reasons for sympathetic consideration by OPA to the requests presented by local dealers at the recent meeting. If the present situation is permitted to develop further along the line in which it is now moving, there is the definite possibility of a further sharp cut in production of domestic oils. This may mean that in the case of some oils where there continues to be little or no incentive for the country districts to produce them, are likely to disappear temporarily at least from the market.

Following the recent New York meeting, referred to above, further suggestions from the essential oil trade are understood to have been forwarded to the Drugs and Cosmetics Unit of OPA. It was announced by OPA representatives at the meeting that at some future date they would call essential oil dealers together again, and lay before them a definite program to relieve the present scrambled price situation. SOAP has been advised subsequently by Mr. Deupree, head of the Drugs and Cosmetics Unit, Chemicals and Drugs Price Branch of OPA that up to this point they are not yet in position to make any definite commitment to any specific programs, nor are they, in fact, in a position to give any indication as to the type of action that OPA may take.

POTASH SOAPS . . .

A discussion of the outlook and changing composition in the light of oil and fat supplies, shortage of coconut oil, and with reference to castor and linseed oil possibilities.

OVER the past two years, all soap manufacturers have had to vary the raw material composition of their soaps in keeping with the kind and type of materials available. In the case of alkalies and other chemicals, few changes have been made from pre-war standards, thanks to a strong American alkali industry. In oils and fats, however, numerous and wide changes have been necessary as every soaper knows. Lack of coconut, palm kernel, and other high lauric acid oils was the most serious problem which the soap industry had faced in many a year. In fact, a shortage of all imported oils threw a much heavier demand on domestic oils and fats, the latter problem being further complicated by ceiling prices and reduced supplies. The ingenuity of the average soap maker was taxed to the limit, and had it not been for the fatty acid producers coming to his rescue with lather-producing replacements, his troubles might have been more numerous than they were.

In this war-born dearth of oils and fats, the small potash soap manufacturer's position has been worse, if possible, than that of the rank and file of the soda soap producers. With coconut oil out of the picture, practically every potash soaper found his main raw material bulwark removed. His choice of raw materials was narrowed sharply to a few vegetable oils, soya bean, corn, peanut, and when and where obtainable, olive and castor oils. On top of this, compulsory glycerine recovery by all soapers using more than 10,000 pounds of oil per quarter, forced him to turn to the use of corresponding fatty acids. Without an appreciable percentage of high lauric acid oil, lather became a serious problem, and to some extent was solved by the introduction of special fatty acid mixtures, particularly compositions of myristic acid, certain fractions of soya bean and coconut fatty acids, and the like. Whether liquid shampoos or toilet soaps, oil soaps, floor scrub or other potash soap, the same lather problem was present.

When asked what he was using to make his soaps, the potash soap producer would invariably answer that he was using anything he could get. Various and sundry materials found their way into the kettle. Tallol and rosin were used in soft and liquid soaps. Some found them quite useful in liquid floor scrub soaps. The use of one or two per cent of tetrasodium pyrophosphate in some of their potash soaps, including liquid shampoos, was found to help lathering properties where the bulk of the soap was made from soya bean or corn fatty acids and the coconut oil content was 15 per cent, or 10 per cent, or less. Some liquid shampoos were put on the market which contained no coconut oil whatever. And a few shampoos were still marketed which carried as high as 50 per cent coconut oil. In fact, composition varied just about as widely as it could. Set standards of composition which existed more or less along loosely drawn lines before the war, were forced out of the picture by the raw material situation and each manufacturer set his own standards,—which often varied from week to week,—according to the raw material he had on hand or could buy.

This summarizes briefly the general situation among potash soap manufacturers as it existed for the greater part of 1943. But conditions have changed for the better thus far in 1944, and the outlook is for a further improvement over the next few months,—and for a material improvement if soapers are able to use increased supplies of certain fatty raw materials which will probably be made available to them through the efforts of the War Food Administration, particularly castor and linseed oils.

Expect More Coconut Oil in 1944

ALTHOUGH the general outlook for the supply of oils and fats for all soap uses during 1944 is better than it was a year ago for 1943, estimates still indicate that 1944 soap fats and oils will be short about 228,000,000 pounds of the totals needed. If allocations of high lauric acid oils for the first quarter of 1944 are an indication,—the total was 45,000,000 pounds of coconut, babassu, etc.,—there may be as much as 180,000,000 pounds of coconut oil, et al, available for soap manufacture this year. Of this, the potash soapers will undoubtedly receive their share. This total figure, if it materializes, will approximate about 50 per cent more coconut than was released for soap during 1943, and should be a factor in quality improvement, partic-

ularly of lathering properties. Although there is no official word or intimation to substantiate the report,—and the wish may be father to the thought,—there is a belief expressed by a few soapers and some oil people that there will be an increase in coconut and babassu oil released April 1 for the second quarter.

With a revision of the glycerine recovery regulations (F.D.O. 33) recently by the War Food Administration, increasing from 10,000 pounds per quarter to 150,000 pounds the maximum of whole oil or fat which may be used without glycerine recovery, the raw material situation has been simplified for many small soap makers. Into the group using less than 150,000 pounds of oil or fat per quarter fall about 75 per cent of all potash soap manufacturers in the United States. Some of these who have been using fatty acids over the past year and who have become accustomed to their use, will undoubtedly continue to use them in whole or in part according to convenience and cost in obtaining raw materials. If coconut or babassu oils are not available in quantities sufficient to take care of individual needs, the likelihood is that there will be a continuation in the use of fatty acid mixtures designed for coconut oil replacement. Though the top limit for the use of whole oils without glycerine recovery has been raised to 150,000 pounds per quarter, there is also the possibility that each small soaper will not be able to obtain this amount of whole oils without turning in part to oils, specifically castor and linseed, not heretofore used in very large percentage in the soap kettle.

Liberalizing glycerine recovery requirements as they affect the small soaper grows directly out of a marked increase in glycerine stocks and reduced consumption for war purposes over the past four or five months. There has been less willingness than heretofore for several months on the part of glycerine refiners to take over glycerine lye and sweetwater from the small soap plants in the face of their mounting stocks of glycerine. Pressure to permit larger sales of glycerine in less-essential civilian channels has also been reported heavy in Washington for some time. Add to this an increased stock of many fats and oils in the United States and an outlook for a continuation of heavy production and larger imports, and the liberalizing of whole-oil use by small soapers is quite understandable.

Coconut Use Trend Up

FOR the past several months, there have been indications of a steady improvement in the supply position of coconut oil,—and likewise babassu. Larger shipments of coconut oil and copra have been coming in from Ceylon, Papua, and other sections of the South Pacific. Imports of babassu oil and kernels from South America have shown a marked increase, according to reports. In addition to larger arrivals, stocks of coconut oil in storage in the United States have not been improving with age. Reports state that there has been a rather rapid rise in the free fatty acid content of many lots of oil which have been stored for long periods, not always under the best conditions for prevention of the development of rancidity and high acid figures. But irrespective of the reasons, larger amounts of coconut oil have been released to the soap kettle and coconut fatty acids have been somewhat easier to obtain with the result that the percentages of high lauric acid fats in soap have shown an upward trend over the past few months from the low points reached about the middle of 1943.

Before Pearl Harbor, most of the liquid shampoos on the market were chiefly coconut oil, some carrying percentages of olive oil, 10 per cent and up, and in a lesser number of cases, castor oil, 5 up to 20 per cent. Soya bean, corn, linseed, and other vegetable oils found their use in the potash soap field in oil soaps, scrub soaps, and other specialties with innumerable variations in formula. After Pearl Harbor and with the freezing of coconut oil, potash soapers reversed the formula of liquid shampoos, using chiefly soya bean or corn oil or fatty acids with 10, 20 and in some cases a higher percentage of such coconut oil as they were permitted to use.

To produce various effects and to stretch those oils and fatty acids used, and in the face of scarcities of all fatty acids, percentages of tallol and in some cases rosin have been incorporated. Special fatty acid mixtures as mentioned previously are being used as aids to boost reduced lathering properties. Judging from the action of some so-called liquid soaps in dispensers in wash-rooms, their soap content must have been extremely low and the coconut oil content of the soap about nil. In one or two cases, the action of the dispensed liquid which showed no lather at all, raised the suspicion that it was merely a solution of trisodium phosphate or even sodium carbonate.

From the low point to which many shampoo and other potash soaps fell six months ago, there has been a general trend back. The percentage of coconut oil tends to creep up and the lather of the products to improve accordingly. In fact, one or two products on the market are reported again being made from straight coconut oil or fatty acids, although this appears to be somewhat of an extravagant use of such at the present time. An interesting sidelight to the enforced reduced content of high lauric acid oils in shampoo soaps and liquid toilet soaps is reports of less hand chapping from the makeshift wartime products.

Linseed-Castor Oil Plan

JUDGING from reports heard in Washington, the War Food Administration is laying the groundwork to force larger quantities of castor and linseed oils to the soap kettle. That WFA may eventually require the use of 15 per cent of either or both of these oils by all soapers is a possibility. This would go a long way to make up the anticipated deficit of 228,000,000 pounds of soap oils and fats for 1944. Already it is figured that about 20,000,000 pounds of castor and 2,000,000 pounds of linseed will normally be used in soap this year. If the reported 15 per cent were carried out, it would mean close to 200,000,000 pounds additional of these two oils consumed in soap. It so happens that this quantity will be available in 1944, there being an excess of both oils anticipated. Indications are that some soapers, including a few in the potash soap group,

are already working on ways and means to fit the above-mentioned percentage into their production, although most soapers are strongly opposed to linseed as a soap oil. The report has it that the 15 per cent figure would be calculated on an over-all basis and that no soaper would be required to use either castor or linseed in every soap which he makes as long as his total use of all oils, fats, and fatty acids included the requisite 15 per cent.

Opposition to the use of castor oil is not too widespread, but linseed oil is generally in disfavor with soapers. This is true among potash as well as hard soap manufacturers. For certain potash soap specialties such as floor scrub and some oil soaps, linseed finds considerable use when the price is right,—which is seldom. The residual odor of linseed soaps is well known, including the development of a fishy character on aging. With its high iodine number, linseed could be little else but dangerous as a soap oil. This is true for the manufacturer of liquid shampoo or for ordinary laundry soaps. Past experience with the oil has not been good.

Linseed in Potash Soaps

FOR the producer of hard soaps, hydrogenation is a possibility, of course, but faces the problem of hydrogenation facilities which today are operating at just about full capacity on other essential fats. For the potash soap maker, a highly refined linseed has been reported to be used with some success. This oil has been super-refined by use of an alkaline wash, by open steam treatment, by heat, or by a combination of these. Complete removal of albuminous matter and other impurities is reported to aid greatly in improving the odor of the finished potash soap and its keeping qualities. Where an oil of this type is used up to 25 per cent in a shampoo base in combination with 20 per cent coconut and 40 per cent corn or soya bean fatty acids, the finished product is said to be satisfactory and the odor easily covered by a slight excess of perfume.

Castor oil has been used in potash soap shampoos for many years. Some soap makers have made it a rule to use 5 or 10 per cent castor in their coconut oil shampoos, the idea apparently being to produce a more bland product and one which tends less to cause hand chapping and burning of the scalp. Any number of formulas calling for higher percentages of castor oil are said to be satisfactory for liquid shampoos. One suggestion is for 12 per cent coconut fatty acids, 18 per cent castor, and the balance corn, soya bean or other fatty acids. Another soaper has found 25 per cent castor, 25 per cent coconut, and 50 per cent of other fatty acids or whole oils. One manufacturer reports that he is again using 50 per cent coconut oil in his shampoo,—where he previously used 20 per cent,—and has moved up the castor oil to 20 per cent, the balance being other fatty acids.

Cost Against Linseed Soaps

IN fairly low concentration, straight linseed oil soaps jell at average temperatures, above 20 per cent concentration of anhydrous soap, usually being a jell. Both coconut and castor oils, however, give so-called thin soaps and in combination with linseed soaps tend to keep the product liquid if the concentration of linseed soap present is not too high. Where material cost must be kept down, however, there is no inducement to use linseed oil at present prices. It stands more than two cents per pound above castor, soya bean, etc. and with this differential, naturally demand will go to castor in preference to linseed. As a matter of fact, it is pointed out that tallol is a preferred product over linseed oil in the light of the wide difference in cost. And in considering costs, there is also the matter of the OPA and ceiling prices which seems to tip the scale even further against linseed in the present raw material scramble.

Although the position of the potash soaper may not seem too happy today, a quick reference back to the days of World War I should be sufficient to convince anybody who remembers conditions then that the present situation is not really bad. Back in 1918-19, potash was impossible to obtain. Liquid and soft soaps were made with caustic soda and everything else from sugar syrup to glue. Dispensers by the thousands were plugged up, thousands of gallons of soap were shipped back to the manufacturers, and liquid soaps as a class were given a black eye from which it is surprising that they ever recovered. Today, the situation is infinitely better than it was then, and the outlook is for improvement and a gradual return to normalcy. For the fact that today, caustic potash adequate for all our needs is manufactured in the United States,—whereas all potash was imported from Europe prior to 1914, — American potash soap manufacturers should be duly thankful.

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The dispersed phase in transparent water-in-oil dispersions is believed to consist of submicroscopic micelles having a core of soap-in-water solution and a surface monolayer of soap ion pairs interspersed with nonionized molecules with the hydrocarbon portions oriented outwards. The high soap to water ratio insures that the soap is undissociated. The presence of the water/oil interface containing oriented nonionized molecules allows undissociated soap ion pairs to orient there also, as an alternative to association in curd fibers; the nonionized molecules separate the soap ion pairs sufficiently to prevent the repulsion between them that would otherwise occur, and indeed convert the repulsion in the monolayer into an attraction by forming complexes with the soap. Semi-quantitative evidence in support of this hypothesis is presented. T. P. Hoar and J. H. Schulman. *Nature* 152, 102-3 (1943).

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An ester-type oil containing free fatty acids is purified by countercurrent extraction with an aqueous solution of isopropyl alcohol containing ammonia. An amount of ammonia is first introduced which would be approximately equivalent to the free fatty acid content of the oil. The alcohol feed then used contains an additional amount of ammonia equivalent to 10-40 per cent of that added with the oil. W. J. D. van Dijck, to Shell Development Co. Canadian Patent No. 417,598.

GLYCERINE SUPPLY...

Easing of F.D.A. regulations reflect larger stocks and currently reduced demand for war purposes

GLYCERINE, like a number of other materials associated with soap manufacture, is in sufficiently larger supply that government agencies have seen fit to ease restrictions regulating its recovery and use. Accumulation of glycerine stocks as a result of a considerably reduced demand for war purposes over the past six months has become a worry and a storage problem for some refiners, stocks being larger than those outside of the industry had been led to believe. For some time, it had been generally understood that the glycerine supply situation was tight. This condition bore out the prediction made at the meeting of the Association of American Soap and Glycerine Producers, a year ago, in Washington. At that time, E. W. Wilson, head of the Soap and Glycerine division of the Fats and Oils branch of the Food Distribution Administration of the U. S. Department of Agriculture, pointed out that restrictions on the soaper's use of fats and oils would reduce 1943 glycerine production well below the record level of 1942.

However, the sudden betterment of glycerine supplies and production at the midway mark in 1943 and a continuing improvement in the situation, so that a total estimated production of 180,000,000 pounds for the year is predicted, were not foretold. Nor was the improvement mentioned prominently or acted upon until some time later. This cautious lifting of restrictions indicating the true glycerine position of the country was naturally construed to have been done in the interests of national security. At any rate, the glycerine supply outlook is reported by the trade to be excellent. In fact, it has been said that the releasing of unlimited supplies of glycerine to essential users and the freeing of greater quantities to less essential users were done at the behest of glycerine refiners who were running out of storage space. Released belatedly, as were some fats and oils, there is now said to be something of a distribution problem. This faltering of the distribution system will, it is thought, be cleared up in a couple of months. A return to more normal marketing of glycerine will be greatly aided by the fact that orderly marketing was characteristic of glycerine supplies both before and during the war. This has been so because the same factors have controlled it throughout both the pre-war and war periods, and, continuing to control it after the emergency, give assurance of quicker relief than would be possible if the distribution had been in different and less able hands.

In recent weeks the following measures of relief affecting glycerine have been effected: 1.) allowance of glycerine content in soap to be raised from .08 to 1.0 per cent; 2.) exempting soapers using 150,000 pounds of fats and oils a quarter from reclaiming the glycerine. The figure was formerly 10,000 pounds a quarter. The new higher figure is said to take in 75 per cent of all soap makers in this country; 3.) the issuance by the War Food Administration of an order releasing unlimited quantities of glycerine for essential civilian and military uses, and larger (than formerly) quantities of glycerine for a second class of products.

Specifically, what is behind this new liberality with glycerine? Smaller war demand, big imports and big production summarize the answer to the question. Stocks at the end of November, 1943, are said to have been in the neighborhood of 74,500,000 pounds. This represents a considerable jump from an estimated stock of 59.6 million pounds recorded for July, which, from the standpoint of stocks and production, was considered the low point of the year. It is said that a minimum stock of about 50 million pounds was considered to be necessary as a war safety factor. What with restrictions on use, a high rate of production, more imports, and improvement in the fats and oils situation, glycerine stocks mounted rapidly between July and December. Contributing also were larger quantities of spent lye for evaporation from small soap makers and the reported splitting of all oils prior to use by one large soap maker.

PRODUCTION figures for 1943 probably gives a good indication of what the glycerine picture was and probably is now. In January, production is reported to have been around 13 million pounds. This figure dropped to 11,873,000 pounds for the month of May and hit bottom for the year in July at 11,314,000 pounds. July was the turning point, however, for in the very next month production jumped sharply to 16-odd million pounds, which figure rose still higher in Sep-

tember to 16,771,000 pounds, the high for the year unless December, for which figures are not available at this writing, should go above it.

In all, it is estimated, production for 1943 will total around 180 million pounds, of which perhaps 10 million pounds will be the result of importations. Canada, which in the past has sent her spent soap lye to Great Britain for evaporation for glycerine recovery, is reported now, under a Lend Lease arrangement, sending it to the United States. Canada's production facilities have been increased so that she is now said to be producing in the neighborhood of ten million pounds of soap lye a year, in contrast with three million pounds annually in the pre-war period. South America is also furnishing us with soap lye, although the bulk of our imports, for which no official figures are available, are coming from Canada.

Further cause for optimism in regard to glycerine may be derived from the fact that the Department of Agriculture's paper, "Fats and Oils Situation," predicted recently that supplies of fats and oils in the United States will be larger in 1943-44 than in 1942-43. Production from domestic materials is likely to total about 11.2 billion pounds (revised estimate) compared with an output of 10.6 billion pounds a year earlier. Factory and warehouse stocks at the beginning of the season (Oct. 1) were 80 million pounds larger in 1943 than in 1942, and imports will be increased, says the paper.

In addition, under the stimulus of meat points for salvaged household waste fats, another valuable source of glycerine is being expanded. If the 300 million pounds of waste fats that is expected in 1944 from this source are turned in, it will mean a glycerine yield of roughly ten per cent or 30 million pounds, one-sixth of our total annual production in 1943.

Although soapers are still restricted as to the amount of fats and oils they may consume in the manufacture of soap, there is a large quantity of soap made from quota free fats and oils. This soap for essential government users is productive of considerable quantities of glycerine, and as government demands for soap continue, glycerine production, likewise, will be proportionately high. Civilian demands for soap will probably continue high, perhaps not as high as when talk of soap rationing was prevalent, but high enough to keep up soap and consequently glycerine production. A side light on the condition of glycerine supplies is the report that two of the largest glycerine producers are resuming their advertising of glycerine for the first time in several years.

FROM one of the largest buyers of glycerine comes word that the situation must be easier since salesmen are now beginning to say "thank you" once again for glycerine orders. This buyer tells the story that one glycerine producer had become so desperate for storage space that he threatened to let the glycerine run down the sewer unless some measure was taken to reduce his excess stocks. Further severe restrictions by government agencies on glycerine use were felt to be purely "disciplinary" to make manufacturers "aware that there is a war going on."

For the time being, although supplies of glycerine in refiners' hands are adequate, it is thought difficulty in obtaining it may be encountered due to the condition of shipping space and the shortage of manpower. The distribution aspect will be the big problem for the next few months, a trade source reports. While it is necessary for production to be at a peak, the increased availability and the need to maintain a huge stock pile will tax already crowded production facilities. However, this condition is likely to be only a temporary one.

What effect will overgrown stocks of glycerine have on the fat salvage campaign of the soap industry? In all probability, there will be no material effect, even though the keynote of the campaign has been to save fats as a source of needed glycerine. Obviously, the present glycerine situation may be only temporary, although from the oil and fat outlook, this does not seem likely. At the same time, there is no foretelling when some sudden development in the war may cut sharply into glycerine accumulations and cut stocks down quickly to the fifty million pound minimum "safety" level. The F.D.A. from the beginning based its glycerine policy on the national security which undoubtedly was their first consideration. That they played it a little too safe and permitted glycerine stocks to "get away" from them on the high side is quite apparent. That they underestimated the oil, fat, soap and glycerine productive capacity of the country is also indicated. Nevertheless, had their policy been one to produce a reverse of the present glycerine situation, they would have been accused of dereliction of duty. In addition, F.D.A. was probably reluctant to do anything which might have stymied the fat salvage program just when it was picking up full speed.

Glycerine refiners seem to make no bones of the fact that they are worried over present heavy stocks in case of a sudden and early peace. It is reported that Pravda's report of separate peace negotiation between England and Germany, even though it was quickly and vehemently denied, caused chills to run up and down the spine of all glycerine refiners. At present, they feel that they are in a dangerous position in that they would be caught with heavy high-cost stocks in case of a termination of hostilities, and that a rush of these stocks to market upon the removal of government restrictions would play havoc with prices and cause them severe losses.

LINSEED OIL IN SOAP

With soap makers facing the apparent necessity of using substantial quantities of linseed and castor oils in their formulas over the coming year, if they are to continue operating at present high levels, the use of these oils in potash soaps, subject of an article scheduled for our March issue, will be particularly timely. An expert soap chemist of long practical experience will discuss use of these oils in soap formulations, with particular attention to the common problems encountered and a number of suggestions for their solution.

THE WAY IT LOOKS IN Washington

by

C. H. JENKINS

THE new Washington idea this month seems to be that over the coming year some way must be found to push toward the soap kettle some of the surplus of linseed and castor oils that are currently reported available. Reading behind the lines, we gather that criticism which has been leveled at FDA from some quarters on their decision to allow use of edible fats in soap making is perhaps responsible for this new approach to the problem of handling the soap fat deficiency. With an estimated shortage of approximately 15 per cent in requirements of soap fats for the year, and resistance from certain quarters to the diversion of edible fats for soap use, the FDA is apparently falling back on its proposal, originally advanced about a year ago, that soap makers use substantial quantities of linseed oil in their formulas. Castor oil, of which surpluses are available, is also being pushed forward as another potential soap raw material which might serve to fill the gap.

An industry committee has been named, following the meeting of the soap industry in New York last month, which was to report to FDA its findings early in February. They were instructed to look into the matter both from the standpoint of facilities for the use of linseed oil by the soap industry, and the effect that that use of linseed oil might have in increasing costs of soap production. An FDA release dated January 21 indicated that two million pounds of linseed oil have been set aside for soap use this year. This same release suggested that a minimum of 15 per cent of linseed oil could be used in the manufacture of certain soft soaps. Objections which have been pointed out to use of linseed oil are that it has a strong tendency to develop a disagreeable odor in soaps in which it is incorporated, and that it requires the same hydrogenation plant capacity to harden one pound of linseed oil that is required for the hardening of four pounds of an ingredient such as pork fat.

Another important development in WFA thinking this month is reflected in the announcement that fat quota adjustment may be obtained by soap makers to permit them to equalize their quarterly production, and thus make the most efficient use of their shorter manpower supply. The WFA has previously taken the position that a firm which operated on an uneven basis in the base year must continue to operate in this same uneven fashion. The decision has now been reached, however, that where this imposes undue hardship and tends to inefficient use of manpower, appeals will be considered to equalize rate of oil and fat use. Such adjustments as will be granted will not permit the annual use of any greater quantity of fats and oils than are allowed under present orders.

A new order has just been issued which will permit unrestricted use of saponified red oil, which, incidentally, few soap makers seem to be much interested in using. Also in the wind is a proposal to release to soap makers limited stocks of new open head steel drums. Another future possibility is that FDO-42 may be amended shortly to allow some switching of quotas back and forth in permitted manufacture of various types of soap. The present set-up allows manufacture of household soaps at a 90 per cent rate, industrial soaps at 110 per cent and hand pastes at 150 per cent. It is indicated that some hardship cases have resulted from rigid adherence to these quotas, and the order, it is now reported, may be amended to allow a soap manufacturer to make less of one type soap and more of another than his present quota allows.

Users of neutral type wool grease in the manufacture of rust preventives have been allocated enough material for February delivery to fill all their February orders. Manufacturers of lubricants and metal working products will receive 50 per cent of their grease requirements. Applications for use of lanolin and neutral wool grease in soaps, shaving creams and toiletries are still being denied.

A new restriction on use of vegetable oil fatty acids by soap makers is included in amendment 5 to FDO-29, issued January 18. The prohibition on use of cottonseed, soya bean, peanut

and corn oils in the manufacture of soaps has now been extended to cover fatty acids made direct from these oils. Fatty acids made from the foots of these oils, however, may still be used. Exempt also from the above prohibition is the use of these oils, fatty acids, etc., in the manufacture of medicinal soaps (U. S. Army Spec. 4-1027A) for delivery to the United States Army.

Relief for Soap Dispenser Mfrs.

Recent reports from Washington indicate that the needs of soap dispenser manufacturers for metal are to be given somewhat more sympathetic consideration. While there is little prospect in the early future for any amendment to M-126 which would exempt dispenser manufacturers from restrictions on metal use, it has been indicated that appeals from the restrictive provisions of the order will in most cases receive sympathetic consideration from the WPB. There are two important factors which are reported to affect the willingness of WPB to grant metal to dispenser manufacturers, — whether or not the dispenser plant is located in a labor shortage area, and whether the desired metal stocks represent frozen or idle inventory in the manufacturer's or others' hands, or whether the desired delivery represents new metal that would have to be allocated from current production. It is indicated that WPB approval should be obtainable where manufacturers have access either to their own or other idle inventories of metal, and where their operations will not take away labor from essential war work.

The general easing in the metal situation is responsible for a new amendment to M-81 issued January 3, allowing manufacturers of paste soap and cleaners a more generous quota of metal cans during 1944. The new quota is 125 per cent of the quantity, by area measurement, of blackplate used in packing their product during 1942. This compares with the former quota of 100 per cent of 1942 pack. The amendment also allows use of cans down to a one pound size during 1944, where the previous wording restricted paste soap cans to a three pound size.

A new regulation governing the pricing of cottonseed oil soap stock was issued by the OPA on January 14. It restricts pricing to a delivered basis, and will, says the OPA, free soap manufacturers from the necessity of paying needless extra shipping charges which in some cases have amounted to as much as a cent and three-quarters a pound. Delivered ceiling prices have been set by OPA at levels based on March, 1942, prices. The price range is from 6.25c to 6.625c per pound, depending on point of delivery.

Another new OPA price regulation of the month revises the method for pricing of rotenone insecticides. Under former regulations, manufacturers of rotenone insecticides were permitted to charge no more than (1) their March, 1942 ceilings or (2) their 1941 price plus increased cost of raw material, which ever price was lower. The new amendment 4 to the Rotenone Maximum Price Regulation—298, permits manufacturers to petition for individual price adjustments. To obtain an adjustment of an unduly low frozen price, the seller must show that he cannot continue to sell at his present maximum price, and that such adjustment as may be granted will not raise his price above that of a competitor who might sell his customers in the event he were forced out of business.

WFA Estimates of Fats and Oils Which Will Be Available to Soap Makers for 1944 Production

Tallow and grease	1291.5
Lauric acid oils	218.0
Vegetable oil foots	131.0
Lard and rendered pork fat	74.0
Edible tallow	50.0
Fish oil	31.7
Palm oil	20.0
Corn oil	1.0
Cottonseed oil	1.1
Peanut oil	1.0
Soybean oil	5.6
Castor oil	20.0
Inedible olive oil	5.0
Linseed oil	2.0
Miscellaneous	43.7
Total supply	1895.6

Tallow and Grease

Stocks Jan. 1, 1944 (est.)	205.0
Production	1650.0
Imports	100.8
Total supply	1955.8
Total disappearance	1754.3
Indicated stocks Jan. 1, 1945	201.5

* Stated in millions of pounds

New Minimum Wage Order

A new minimum wage order affecting soap makers has just been issued by the Wage and Hour Administrator, U. S. Department of Labor. Effective February 7, it fixes a minimum wage of not less than 40c an hour to be paid by every employer in the soap and glycerine manufacturing industry who is engaged in interstate commerce or producing goods therefor.

Another recent development affecting soap makers is the notice from WPB withdrawing the privilege of obtaining maintenance, repair and operating supplies under P-89 and requiring that such supplies now be obtained under CMP Reg. 5. The purpose of this change is said to be that all soap makers should operate alike under one order. Under CMP Reg. 5 soap makers are given an automatic AA-2 rating to purchase orders for MRO supplies.

Fat Salvage Collections Up

Although showing a week by week increase, beginning with the week of Dec. 6, which showed a gain of 53 per cent over the previous week, household fat salvage really began to roll the week of Jan. 10, first week two red (meat) points were offered for one pound of fat turned in to the drive. The week of Jan. 10, according to "spot-checks" of typical renderers, showed an almost doubling over collections for the previous week. That week 138 per cent more fats were turned in by housewives than in the week previous. The impetus given the fat salvage drive by the exchange of meat points for fats seems to be definitely proving its value.

A new routine has just been announced by FDA on applications from soap makers and other industrial users of rationed fats such as pest control operators and makers of protective industrial creams. Instead of applying by letter, applications must now be made on printed form FDA-695. The same type information as previously required must still be reported.

Soap Year in Review

*By E. H. Little**

Colgate-Palmolive-Peet Co.

THE past year our industry and association have worked with government departments and various task groups in every way possible, to secure necessary fat supplies and to produce sufficient soap to provide the required glycerine and soap products.

Among our many activities have been the following: Services to the government which are unique and could not be secured in any other way; special studies for the government; arrangement of meetings which bring industry and government together; large quantities of clearly digested bulletins distributed to the industry; services to individual companies; technical research; glycerine research facilities, of which some members of the staff are now loaned to the government; information service and widespread soap publicity and also glycerine publicity.

Some of the major objects of our studies and activities have been savings in transportation, savings in paper and wax, savings in advertising expense, reversal by the House Ways and Means Committee of the proposed 10 per cent tax on toilet soaps, fat salvage and then more fat salvage, assistance toward the reduction of any waste of soap by consumers, and greater glycerine recovery.

Without these combined efforts, it seems certain that soap production would have been sharply curtailed, and soap itself might have been rationed, with millions of dollars of expense to the government and great hardship to the consumer. Certainly the soap industry with the cooperation of the government, has done as complete a job as any industry could do under the circumstances.

I should like to emphasize that. I think that a complete, almost a perfect job has been done by soap-makers in making the kinds of soap that people under present-day conditions have wanted, and putting those soap products in the places where people could get them, thereby minimizing possible hardship.

We still have a job to do along these lines. With the experience that we have had this past year and with the continued cooperation of the government, I am sure that we will be able to carry on as we have in the past. It is most important that we do so and I urge each soap-maker to continue to give distribution problems his most careful attention.

Increase in Association Members

The number of association members increased this past year from 167 to 192. I am glad to see this increase. We all are. I should like to see every producer in our industry a member, each bearing his full pro-rata share according to the volume of business he does. I don't necessarily mean his financial contribution to the association—that should come along, too—but I think that everyone in this country who produces soap or glycerine should be a working member of this association and make every contribution he can to all these jobs that have to be done during the war and in cooperation with the government.

Looking Ahead in 1944

With reference to the outlook for 1944, no one can be too certain about the future. I certainly shall not try to be. But we are faced with the certainty of continued problems, many of them. I want to mention just a few.

In our industry, of course, we will not have the problems of reconversion that so many industries will have, but we should make all plans possible to expand our businesses in order that we may pull our full weight in the postwar period, employ as many men as possible, and shoulder all the responsibilities with which we shall be faced.

In looking forward we should concern ourselves specifically with fat supplies and their costs, postwar markets for soap, and postwar markets for glycerine.

Committee for Economic Development

While on this subject, I should like to say this: I attend meetings of various organizations that are talking about spending money and planning for the postwar period. I assume most of you do the same. With other soap people, I am sure that our company was one of the first contributors to the Committee for Economic Development headed by Mr. Hoffman of the Studebaker Corporation. Jesse Jones, with many others, was one of the originators of this committee. They have raised a good deal of money. They have employed some of the best brains of this country and I think it is the first time in our country's history that business has organized effectively for broad, constructive work in a postwar period.

The C.E.D. is setting up local committees all through the country. It is organizing the business men in each community large or small. It is working up a program to endeavor to solve the employment problem after the war is over. It is planning for the time when workers are released from war industries and the boys return from all parts of the world.

I believe the C.E.D. is doing an outstanding job for the good of this country and it is the first time that business has ever organized on a large scale to insure maximum employment. I think all of us, each in our companies and communities, should take part in this significant and important effort.

Increase in Soap Consumption

We as an industry and as individual companies, large and small, should think and plan and do every-

(*Turn to Page 74*)

*Based on Mr. Little's president's report before the Association of American Soap & Glycerine Producers at their annual meeting, January 21, in New York.

TURNER
CHEMICALS

CAUSTIC SODA
PERSULPHATE OF POTASH
PERSULPHATE OF AMMONIA

JOSEPH TURNER & COMPANY

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TRADE NEWS. . . .

Committee D-12 Meets Mar. 13

The Spring meeting of Committee D-12 of the American Society for Testing Materials, which has been working for the past five years on specifications for soaps and detergents, will be held at the Hotel New Yorker, New York, March 13 and 14.

Eastwood Illinois Mfrs. Director

George A. Eastwood, president of Armour & Co., Chicago, was elected a director of the Illinois Manufacturers Association at their year-end annual meeting in Chicago.

DCAT Banquet Mar. 9

The 19th Annual Drug, Chemical and Allied Trades Banquet to be held under the auspices of the Drug, Chemical and Allied Trades Section of the New York Board of Trade, is scheduled for Thursday, March 9, at the Waldorf-Astoria Hotel, New York. Price of tickets is ten dollars per person. Dress will be optional. The following chairmen of dinner committees have been announced: Guy L. Marsters of Norwich Pharmacal Co., reception committee; John J. Toohy of E. R. Squibb & Sons, program committee; Robert B. Magnus of Magnus, Mabee & Reynard, Inc., dinner arrangements committee, and William D. Barry of Mallinckrodt Chemical Works, publicity committee.

Popular Products Taken Over

Popular Products, Inc., manufacturers of washing compounds have been taken over by Johnson Consumer Industries, Inc., Maspeth, L. I., New York, with headquarters at 5936 56th Street.

C-P-P Advances Hilbrant

Robert E. Hilbrant has just been appointed sales manager of the toilet goods division of Colgate-Palmolive-Peet Co., according to an announcement by Manning O'Connor, C-P-P vice-president in charge of the toilet goods division. Mr. Hilbrant has

ROBERT E. HILBRANT

been connected with the company since 1924. Starting as a salesman, he has served subsequently as supervisor, district manager, assistant manager of the merchandising department, and more recently as manager of the new products department.

L. A. Soap Co. Sales Mgr. Dies

Franklin G. Kline, sales manager of the Los Angeles Soap Company, died December 28, at his home, 4813 Ninth Avenue, Los Angeles. He was 65 years old and is survived by his widow, Mary; three sisters: Mrs. William Millham, Mrs. Ida McDonald and Mrs. Robert K. Long; and a brother, Arthur Kline.

Albany Soap Elects Officers

The following officers were elected for 1944 by Albany Soap Corp., Albany, N. Y., at the annual meeting, Jan. 11: Joseph Grober, president and general manager; William C. Schopman, vice-president; William H. Geier, vice-president and assistant manager; John H. Rea, treasurer; and Harry J. Geier, secretary.

Cosmetic Committee Meets

The Cosmetic Industry Advisory Committee was scheduled to meet in New York February 3, at which time the industry was expected to give the OPA its views on two proposed regulations—one dealing with cosmetics in the 5c and 10c price class and the other with gift packages. R. G. Deupree, head of the OPA drugs and cosmetics unit is quoted as saying that it was hoped discussions at the meeting would help the OPA to determine whether to go ahead with the regulations, revise them, or drop them altogether.

Army Advances L. Pasternak

Leo Pasternak, Brooklyn, who formerly conducted a glycerine brokerage business in his own name in New York, was recently advanced from major to lieutenant colonel in the U. S. Army, according to an announcement by the War Department.

FWDA Meets Feb. 7-8

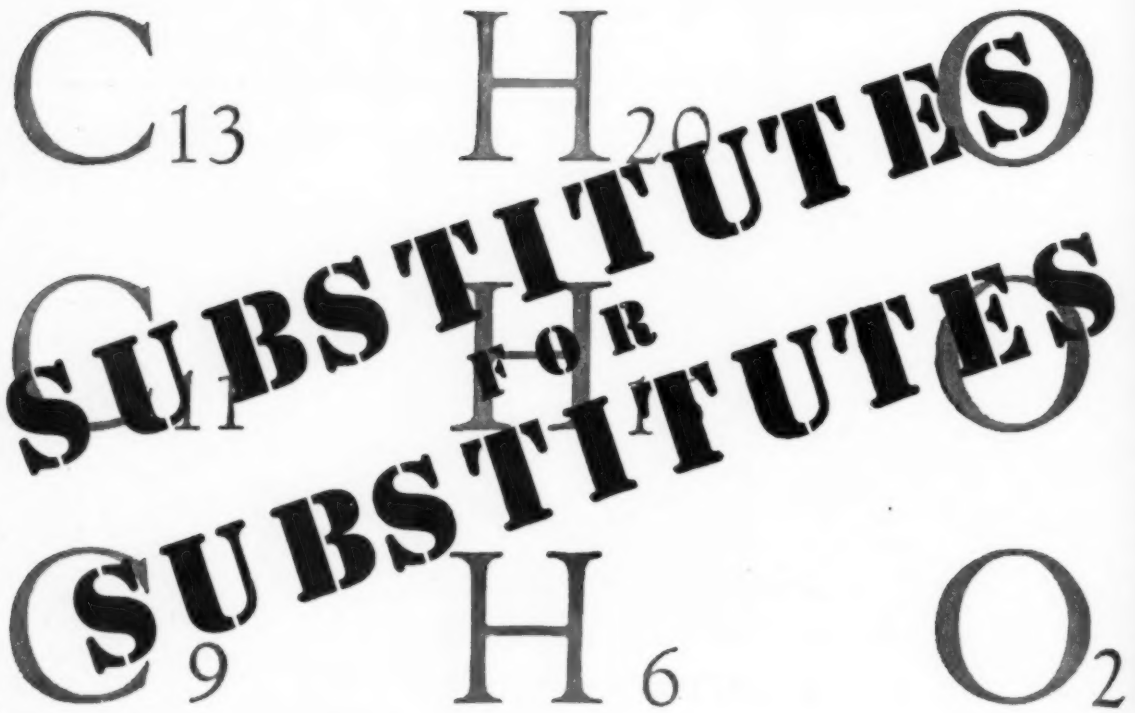
The Federal Wholesale Druggists' Assn. was to hold a conference on February 7 and 8 at the Hotel Biltmore, New York. The future outlook for the drug field was one of the points to be discussed.

CD & CA Meets Feb. 24

The Chicago Drug & Chemical Association luncheon meeting will be held at the Drake Hotel, Walton Room, Thursday, Feb. 24, at 12:15 p.m. Bruce Thomas, war correspondent, author and lecturer, will speak on "Alaska, Door to Japan—Russia, the Key!"

Jacobs Heads Chlorine Institute

S. W. Jacobs, Niagara Alkali Company, New York, was re-elected president of the Chlorine Institute at their annual meeting held on January 26th at the Chemists' Club, New York City.



There was a time when life for the research chemist was comparatively simple. He'd create a new formula for grateful clients, or aid in bringing costs down by suggesting a change in basic ingredients. However, that was all — in what seems — the long ago.

Today, he is a much harassed man.

Not only are vital ingredients denied him — unavailable or price prohibitive — but the substitutes that he so painstakingly created to take their place, have themselves been placed on shortage or priority listings. Today, he must concentrate the full measure of his skill in the creation of *Substitutes for Substitutes.*

Many manufacturers, fighting to keep production moving, have turned to us with their problems. We have, in most cases, been able to supply the necessary help. Our research chemists have, for more than a quarter of a century, made the Florasynth name a byword in the industry, for the creation of effective and successful synthetics. So much so, that our reproductions of natural floral absolutes and true essences have long been accepted as *primary essentials* in the manufacture of countless successful perfumes, lotions and other toiletries.

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C-P-P Paper Conservation Program

CARRYING further our account of the steps the soap industry has taken to conserve paper in its packages and shipping cases, we reproduce below a letter from Roy W. Peet of Colgate-Palmolive-Peet Co., telling of the program that this company has adopted on paper conservation. Among the steps that C-P-P has taken is the publication of a booklet explaining to its own employees the reasons for and the importance of paper conservation. Other steps in the C-P-P program are outlined in Mr. Peet's letter as follows:

We are working in close cooperation with the Soap and Glycerine Association in carrying out the agreed upon objectives of reducing the amount of paper consumed for both our interior and exterior wrappings and containers.

A large amount of time and study has been expended in developing the present plans and programs which may be classed as follows:

1. An educational program was put into effect in order to tell each member of our company the seriousness of the paper shortage and to show them ways and means in which they, as individuals and as a group, could help in solving this shortage.
2. Our Package Engineering Department has reviewed all of our uses of paper in the packaging of our products. Typical examples of the curtailments in the use of paper resulting from this study are as follows:
   a. The wrapping of toilet soap was revised at an annual savings of about two-thirds of a million pounds.
   b. The weight of board stock used for packaged soaps was reduced to such an extent that our requirements were cut not less than one million pounds annually.
   c. Dividers were eliminated from shipping cases, thus saving more than one-half million pounds annually.
3. In cooperation with the Soap and Glycerine Association we are now spot-sealing and taping all our shipping containers for packaged soaps delivered to the Chicago area. A plan has been set up for the return and use of these containers. The savings in the use of paper will be in direct proportion to the number of containers returned. As yet no figures are available.
4. A repair department for shipping containers has been established in order that we may obtain the maximum use out of available supplies.
5. All obsolete shipping containers and other packaging supplies have been reviewed, and, wherever possible, they have been assigned for the packaging of present products.

The above demonstrates the thoroughness with which we have tackled this most serious paper shortage. In following this program we know that we can expect trouble due to present methods of handling outside of our plants, which, when combined with maximum loading of freight cars, present a most unfavorable outlook. Even with this picture in mind, we feel that this plan is the only one that we can follow and that we can thus make a definite contribution in solving the present paper shortage.

Sincerely,

ROY W. PEET,
Assistant to the President

British Toiletries Output Up

Soap, cosmetic and toiletries manufacturers in Great Britain have been authorized by the Board of Trade to increase production as of Jan. 1, 1944 in an effort to curb the activities of black market firms dealing in these commodities. It is believed that only by permitting the manufacture of an adequate supply of legitimate manufacturers' goods can an effective halt be brought to the successful operation of black markets in Britain. The production increases have been described as 50 to 75 per cent increases over prewar production for firms in approved concentration schemes, and 20 to 33 1/3 per cent increases for firms outside concentration units.

OPA Names Wm. Sims

William L. Sims, 2nd, of Orlando, Florida, a consultant to the director of the Industrial Manufacturing Division of the OPA since Nov. 17, and for the past 20 years with Colgate - Palmolive - Peet Co., Jersey City, N. J., and predecessors, was named a price executive in the chemicals and drugs branch of the Office of Price Administration, early last month. In 1927 Mr. Sims went to Milan, Italy, for Palmolive-Peet Co. to organize an Italian subsidiary of the American concern. Upon completion of that assignment, he was appointed continental European manager for the company with headquarters in Paris. In that position, Mr. Sims was responsible for the operation of subsidiary companies in France, Belgium, Holland, Denmark, the Scandinavian countries, Germany, Poland, Switzerland and Italy. When Germany invaded the Low Countries of Europe in May, 1940, Mr. Sims, who was in Brussels, Belgium, returned to the United States. He then served as assistant to the president of Colgate-Palmolive-Peet Co. in making post-war plans for that organization until Sept., 1943, when he retired to look after his citrus grove interests near Orlando, Fla., until he was asked by the Office of Price Administration to come to Washington.

Robert Lusk Leaves C-P-P

Robert Lusk, vice-president in charge of merchandising, advertising and new products for Colgate-Palmolive-Peet Co., Jersey City, N. J., recently left C-P-P to join the advertising agency of Pedlar & Ryan, New York, which will henceforth be known as Pedlar, Ryan & Lusk, Inc. The agency handles such soap accounts as "Ingram's" shaving cream, "Mum" deodorant, and "Camay" toilet soap for Procter & Gamble Co.

Frank Cooper Inducted

Frank E. Cooper, assistant sales manager for Texas Chemical Co., manufacturers of chemicals, soaps and alkalies, Atlanta, Ga., was inducted into the U. S. Army at Fort McPherson, Georgia, recently. He is now stationed at Fort Barrancas, Florida.

CD&CA Hears Talk on Turkey

The Chicago Drug and Chemical Association heard Chester M. Tobin discuss the Turkish situation at its monthly luncheon meeting at the Drake Hotel, Jan. 27.

Britex Co. Moves

Britex Co., manufacturers of cleaners, have moved to new and larger quarters at 33 Simmons Street, Boston 20. The company's new telephone number is Highlands 2920.

for new product research – PQ silicates

VERSATILE MATERIALS such as PQ Silicates of Soda stimulate numerous ideas in the researcher's mind. Some of the resulting developments are certain of laboratory demise, for we would be the first to admit that silicates are not the answer to the alchemist's dream.

But a basic understanding of properties and reactions of the soluble silicates by chemists is revealed continually in the patent literature. Whether you use a silicate of soda only in the manufacture of your soaps and detergents, or for several other purposes, you'll find our bulletin "Brands, Properties, Applications" stimulating. It describes over thirty of the most popular brands of silicates and their uses in industry. Write for your copy.

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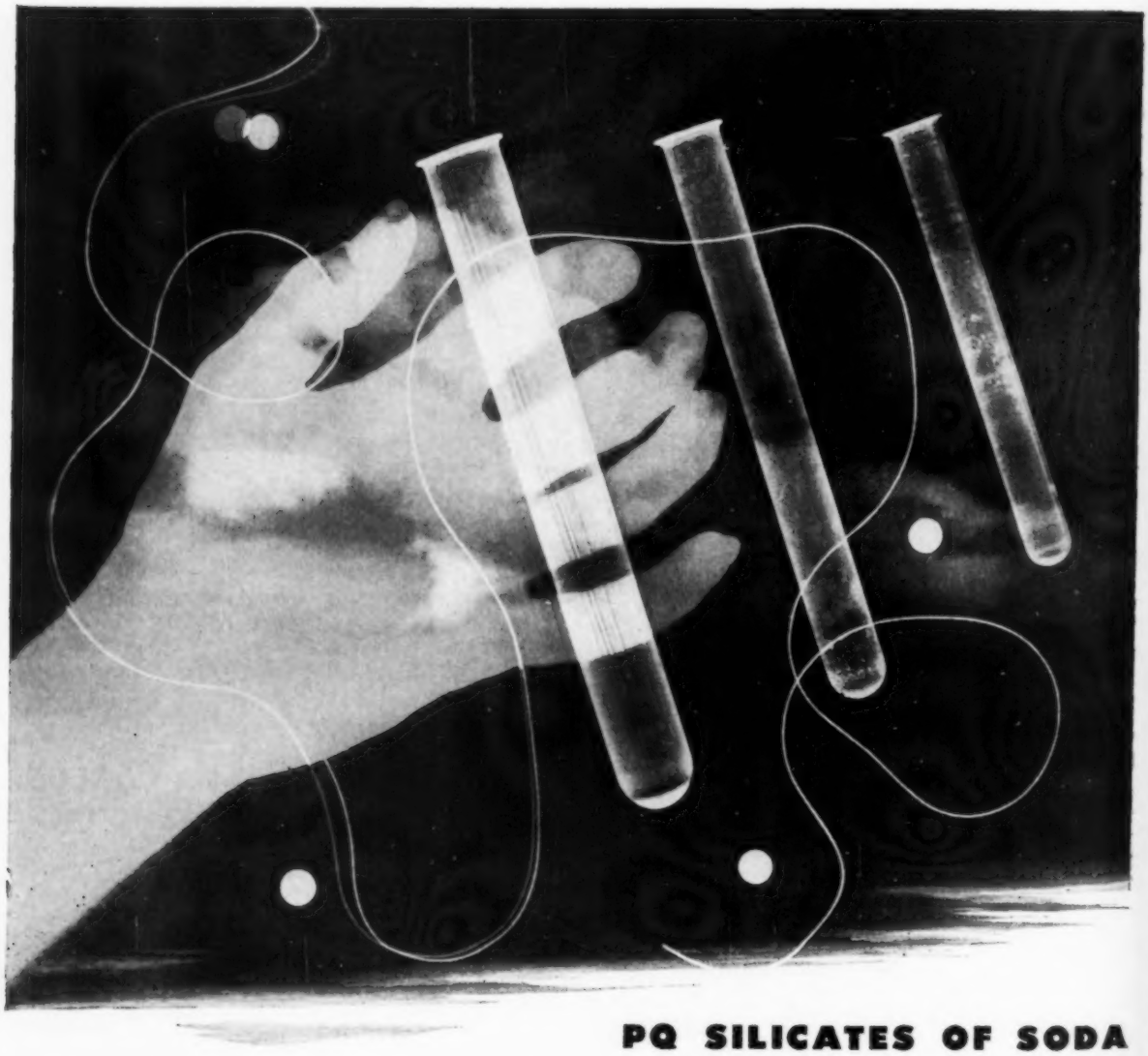

PQ SILICATES OF SODA

WORKS: Anderson, Ind. • Baltimore, Md. • Chester, Pa. • Gardenville, N. Y. • Jeffersonville, Ind. • Kansas City, Kans. • Rahway, N. J. • St. Louis, Mo. • Utica, Ill.

Defend Lard Release for Soap

AN explanation of the reasons behind the release of stocks of edible lard for use in the manufacture of soap is contained in a letter from C. W. Lenth, chief of the Soap and Glycerine Division of WFA, to *Institutions Magazine* and published in the January issue of that publication. Dr. Lenth's explanation followed receipt of a direct request from *Institutions Magazine* asking for a statement of WFA policy on release of edible oils for non-food purposes. The full text of Dr. Lenth's letter follows:

"At your request, we are glad to submit the reasoning which impelled the Food Distribution Administration to allocate substantial quantities of lard for soap making.

"The use of so-called edible fats in soap making is not new. They have been used for many years. Furthermore, we are much better supplied with food fats than with industrial fats, the use of which is highly important right now when production for war is our Nation's prime objective, and one which must be met without delay.

"The Food Distribution Administration is charged with the distribution of food, including all fats and oils. We are doing our best to place the right fats in the right places—and at the right time—with as little inconvenience as possible to civilians.

"A large portion of the commonly called industrial oils are imported, and many of these oils—such as palm and coconut—are available only in small quantities. Before the war, palm and coconut oils were used in soap production by hundreds of millions of pounds.

"While lard itself is used only to a very limited extent in industrial processes, the interchangeability of most fats and oils make it a fine asset. Our production during the next 12 months will be nearly 2½ times that of normal —far in excess of edible requirements. We are forced to consider it, therefore, not simply as lard, but as a significant part of our over-all fats and oils supply. Its availability for soap production makes posible the release of many types and grades of other fats and oils for special needs, both as soap and as essential raw materials for other processes. For example, lard made into household soaps will release an equivalent quantity of tallow for the synthetic rubber program. Tallow is used in the manufacture of an emulsifying agent for use in the making of synthetic rubber and has been found to produce better results than can be obtained from any other raw material.

Soap Rationing?

"There are other considerations too. It has been suggested that soap production be curtailed and that soap be rationed so that the ration of edible fats can be increased.

"Let us examine the results of such a program. The total civilian soap fat requirements are about 1.7 billion pounds, compared with a total civilian edible fat requirement of about 5.6 billion pounds. If all the 336 million pounds of edible fats expected to be used for soap were deducted from the soap fat supply, soap production would be reduced about 20 per cent. If the 336 million pounds were added to the present fat ration, the edible supply would be increased by only 6 per cent.

"The present edible fat ration is 44 pounds of fat per person per year. An increase of 6 per cent would raise this per person allowance to 46.5 pounds or four-fifths of an ounce per week. We believe that if you should ask the housewives whether they prefer four-fifths of an ounce more edible fat per week, or 20 per cent less soap, you would get the same answer we have received—preponderately in favor of soap.

"Soap production has not been free of restrictions. As a result of these restrictions, and greatly increased requirements, soap supplies have become low, and the current restriction of 90 per cent of use in 1940 and 1941 appears to be barely enough to meet essential needs. A 20 per cent reduction in this quantity would result in unnecessarily severe hardship.

"Rationing is not a satisfactory solution, since soap requirements of consumers are dependent on so many factors that a uniform ration would impose hardship on many, and allow others more than needed. The current production rate is about 22 pounds of soap per person per year. Surveys have shown that individual usage varies from 7 pounds to over 100 pounds per year, depending on such factors as water hardness, occupation, and whether laundering is done at home or in commercial laundries. Such extremes in usage would make it extremely difficult to devise an equitable rationing system.

"We hope this explanation clarifies our position in the matter."

C. W. Lenth, Chief,
Soap and Glycerine Division,
Fat and Oils Branch.

Skin Protective Creams

NIELCO LABORATORIES, Detroit, has just issued a bulletin describing its line of protective skin creams and listing desired characteristics in such products. From the work that they have done along this line in cooperation with a number of large users they have come to the conclusion that the ideal type of skin protective coating should have the following qualities:

(1) It should leave a dry protective film over the skin unaffected by water, flexible and readily removable by the use of hot water and soap. (2) It should contain a skin conditioner that will not alone guard the skin against moderate surface damage, but also help to restore the flexibility to a dry skin, thereby reducing the danger of skin infection. (3) It should be able to withstand sweating as well as being able to absorb the bulk of it without sealing the horn cells, thereby leaving them free to function normally. (4) It should reduce the radial heat of the skin, giving a cooling effect when applied. (5) It should contain a non-irritating antiseptic agent that will have a bacteriostatic action against germs carried onto the skin by dirty rags and that also, together with the oils and waxes employed in the product, will have a healing action on an already irritated skin.

Castor oil and lanolin are common ingredients in formulae for skin protective creams but they must be specially processed to fit them for such use. The antiseptic agent incorporated in the "Nielco" products is said to consist of oil of eucalyptus, boric acid, salicylic acid, ichthyol and alcohol. It is further recommended that skin protective coatings be on the acid side wherever possible, and that in no case should any coating be used having a pH higher than 8.0.

FOR SOAP PERFUMING

Vio-Tones*

VIO-TONE "A" imparts a very distinctive odor—a neutral, woody sweetness well suited to soap perfuming.

VIO-TONE "E" is an unusually interesting odor—very deep, earthy and rooty in character, leaning toward orris, but with slight suggestion of a fruity note. Try this in your soaps if you are interested in a pleasant but somewhat less "perfumy" effect.

VIO-TONE "L" works very nicely in soaps. It has a strong, leathery, somewhat woody scent; very powerful. Imparts a tart, leathery note. While all of these Vio-Tones have excellent fixation value, this one is especially well fixed.

VIO-TONE "O" is not unlike Vio-Tone "S" in its basic odor. Its fragrance, however, is of a stronger and more leathery character. Useful in soaps for the creation of violet effects or the more subtle masculine type odors.

VIO-TONE "S" is recommended as a basis for French type bouquets and for violet and other floral compositions. It has a deep, sweet tonality, distinctly woody, with a tart and slightly spicy character. Try it in your soaps.

*VIO-TONES are long-lasting, cause no discoloration and are stable in milled soap. Closely related to the Ionones, they may be used in their stead to give your soap perfumes a new and delightful appeal. You will like their fragrance and you'll like their economy . . . may we send you samples?

FRITZSCHE BROTHERS, Inc.

PORT AUTHORITY COMMERCE BLDG., 76 NINTH AVENUE, NEW YORK, N. Y.

BRANCH STOCKS

BOSTON CHICAGO LOS ANGELES ST. LOUIS TORONTO, CANADA MEXICO, D. F.

FACTORIES AT CLIFTON, N. J. AND SEILLANS (VAR) FRANCE

Gauer Heads Chi. Soap Assn.

Joseph Gauer of Fritzsche Bros., Inc., Chicago, was selected to head the Chicago Perfumery, Soap & Extract Association for 1944, at the recent annual business meeting. He succeeds Jules B. Montenier of the cosmetics company bearing Mr. Montenier's name. F. A. Degener of Heyden Chemical Corp., was elected to the post of vice president which Mr. Gauer vacated. Herbert Rothschild, president of Lanchere, Inc., continues as secretary. At the January meeting at the Bismarck Hotel, 90 members enjoyed a film on "Alaska Today" and a talk by the world traveler and commentator, Wm. L. Darden.

Mathieson Names Dolan

George W. Dolan, elected executive vice-president in 1941, was named president of Mathieson Alkali Works, New York, succeeding E. M. Allen, whose retirement as president was announced Dec. 31. Mr. Allen will continue as chairman of the board. He became president of the company in 1919 and was elected chairman of the board of directors in 1938. Mr. Dolan joined the company in 1930, holding various executive positions until 1941 when he was named vice-president.

New "Wear-Ever" Cleaner

Aluminum Cooking Utensils Co., New Kensington, Pa., has announced a new "Wear-Ever" aluminum cleaning powder for use on aluminum utensils and in sinks, bath tubs and other household equipment. It is packaged in cartons containing 12 oz., each with a pouring outlet at one end near the top.

Armour Earnings at Peak

Dollar sales of Armour & Co., Chicago, for 1943, reached an all time high of $1,416,558,000, the annual report, made public Jan. 10, reveals. Consolidated net income, Pres. George A. Eastwood disclosed, totalled $14,570,838, equal to $21.47 a share on the $6 preferred stock. Earnings were equal to slightly more than one cent on each dollar of sales, or at the rate of one-sixth of a cent per pound of products sold.

Organize Syntomatic Corp.

Dr. Victor G. Fourman and Irving Bennett, both formerly of Compagnie Parento, Inc., have just organized a new company in the perfuming

Irving Bennett

Victor G. Fourman

material field which will operate under the name Syntomatic Corp., with offices at 114 East 32nd St., New York. Dr. Fourman will head the new concern, with Mr. Bennett as vice-president. Dr. Fourman, who had been chief chemist of Compagnie Parento for a number of years, received his doctorate in chemistry at Columbia University. He was subsequently a research fellow of the American Manufacturers of Toilet Articles and at one time a research chemist for the Dermatological Laboratories of Philadelphia. Mr. Bennett, formerly sales manager of Compagnie Parento, first entered the perfuming materials industry in 1922 when he joined Standard Chemical Co. When this concern was merged with Antoine Chiris Co. he took charge of their Canadian division, later returning to New York to become sales manager for United States and Canada. He had been with Compagnie Parento since 1934.

Breckenridge K & E V.P.

Wilder Breckenridge, manager of the household waste fat salvage drive, and an account executive of Kenyon & Eckhardt, Inc., New York advertising agency, has become a vice-president of the agency.

Diamond Alkali Appoints Diaz

Diamond Alkali Co., Pittsburgh, has just announced the appointment of Raymond Diaz, formerly treasurer of Benner Chemical Co., Chicago, as supervisor of district offices of Diamond Alkali Sales Corp.

P & G '43 Second Half Net Up

Procter & Gamble Co., Cincinnati, reported, late last month in its operating statement for the six months ending Dec. 31, a net profit amounting to $10,405,490 after deducting provision of $6,945,000 for Federal income tax and net excess profits taxes of $3,109,500. No provision is made for renegotiation. The profit, which does not cover earnings of English and Canadian companies except where they have been made available in this country in United States funds, is equivalent to $1.57 a share on the common stock. This compares with $10,194,515 or $1.54 a common share earned in the six months ended Dec. 31, 1942.

Contained in the statement was a report on the effects of renegotiation for the fiscal year ended June, 1942. By arrangement with the Price Adjustment Board of Cincinnati district contract prices were reduced to the extent of $290,000. After adjustment for taxes the net amount was $187,820 and this has been paid to the Government, according to the company's report.

Charles Grossman, Solvay, Dies

Charles P. Grossman, 43, sales manager of the New York branch of Solvay Sales Corp., died in his home at Great Neck, N. Y., Jan. 15. He had been with the Solvay organization since 1922, when he joined the Cincinnati office of the corporation. In 1927, he was made manager of the Cleveland branch, which post he held until 1930, when he was appointed manager of the New York branch. A native of Cincinnati, Mr. Grossman began his business career as a salesman for Greenwall, Hirsch & Griff, later joining Drackett Chemical Co., Cincinnati, in 1919 with whom he was associated until he joined Solvay. Mr. Grossman is survived by his widow and three sons and a daughter.

Keller Leaves C-P-P

Harry Keller, recently public relations director of Colgate-Palmolive-Peet Co., Jersey City, N. J., recently joined the publicity department of Universal Pictures, New York.

Essential Oil Assn. Elects

John H. Montgomery, secretary of Fritzsche Bros., Inc., New York, was elected president of the Essential Oil Association of U.S.A. at the annual meeting of the organization held the evening of January 14, at the Hotel Pennsylvania, New York. He succeeds V. H. Fischer, vice-president of Dodge & Olcott Co., retiring president of the association. William Schilling, Jr., secretary of Norda Essential Oil & Chemical Co., was elected vice-president, and Robert B. Magnus, vice-president of Magnus, Mabee & Reynard, was re-elected secretary - treasurer. Newly elected members of the executive committee include Mr. Fischer and Frederick G. Buehler, vice-president of George Lueders & Co.

At the business session particular attention was given to the recommendation of Dr. Eric Kunz, president of Givaudan-Delawanna, Inc., and chairman of the association's scientific committee, that standard methods be developed for testing all essential oils not in the U.S.P. and N.F. In effect, Dr. Kunz' proposal was that the association proceed with formulation of a book of standards for non-official essential oils, to supplement the standards of the U.S.P. and the N.F. Committee reports were also presented by M. Lemmermeyer of Aromatic Products, Inc., chairman of the Aromatic Chemicals Committee, and F. L. Goudsmit, van-Ameringen-Haebler, Inc., chairman of the Export Regulations Committee. Following the business session, members of the association enjoyed a dinner and program of entertainment. Approximately 150 attended.

JOHN H. MONTGOMERY

Shulton Personnel Shifts

Shulton, Inc., New York manufacturers of soaps and toiletries, has recently announced the following personnel shifts: Harry E. Waters, formerly in charge of southwest territory, with headquarters at Dallas, now heads the west coast territory branch whose showrooms and warehouse are located in Los Angeles. The new offices are situated at 420 S. San Pedro Street. Paul C. Stoneman, formerly of the sales staff, is the new manager of the southwest territory at Dallas which includes showrooms and warehouse. Philip Elixson of the Dallas branch, was recently appointed a salesman and will cover the northeastern territory comprising Arkansas and part of Kentucky, Tennessee and Oklahoma.

Veteran's Group Elects McNinch

De Vere L. McNinch, manager of the Chicago office of Florasynth Laboratories, essential oils house, New York, was elected president recently of the Red Arrow Club, veteran's organization of the 32nd Division, with which he served in the first world war.

Approve Racemic Menthol

The use of racemic menthol in place of menthol, U. S. P., as a denaturant for a specially denatured alcohol has been approved by the Treasury Department, following a request for a ruling by Givaudan-Delawanna, Inc., New York, menthol manufacturers. A sample of racemic menthol was submitted by Givaudan, together with data concerning the relative characteristics and toxicity of the inactive isomer, as compared with menthol, U. S. P. On the basis of this information, and in consideration of the fact that racemic menthol is an approved product in both British and German Pharmacopoeias, the use of the racemic variety in lieu of menthol, U. S. P., in specially alcohol, Formula Nos. 37, 37-A, 38-A, 38-B, 38-C and 38-D, was approved.

BIMS Hold Annual Dinner

BIMS of New York held their annual dinner on January 20, at the Hotel Lafayette, New York, with an attendance limited to 175 members and guests. A number of members were unable to be accommodated at the last minute owing to war-time restrictions by the hotel. Martin Schultes, Hewitt Soap Co., New York BIMS chairman, presided and there were no formal speeches. Four prizes consisting of $25 and $50 war bonds were awarded as the result of a drawing by Charles Darr of Harriet Hubbard Ayer. The prize winners were I. H. Bender of McKesson & Robbins, Inc., F. C. Kaiser of Keller-Dorian Paper Co., and H. B. Sliger of Commercial Solvents Corp. among the members, and E. F. Clement of the J. C. Penney Co., a guest. Following the dinner, numerous games of bridge, poker, and African cuboids were engaged in by those who attended.

Hooker Sales Appointments

The following sales appointments have just been announced by Hooker Electrochemical Co., Niagara Falls, N. Y.: Thomas H. Trimble, for the past eight years covering upper New York State and western Pennsylvania, has been named sales representative in the eastern Middle Atlantic territory with headquarters at the New York office in the Lincoln Building, 60 E. 42nd St., New York. Ralph E. Davis, Jr., has been appointed sales representative in upper New York state and western Pennsylvania, with headquarters at Niagara Falls. Mr. Davis joined Hooker in 1941, having been associated with the leather industry for eight years before that.

O'Brien Heads Can Group

F. J. O'Brien, executive vice-president of Continental Can Co., New York, was re-elected president of the Can Manufacturers Institute by the new board of governors at its first meeting held Jan. 10, in New York. Up for discussion at the meeting was the resumption of manufacture of tin cans for the products turned to steel container packaging by recently amended WPB order M-81.

Westward the Course

Westward from the Hudson and up through the fertile, rolling valleys of 'York State, came the Dutch and other traders in their great lumbering Conestoga wagons. They brought with them the necessities and luxuries sought by the settlers and the pioneers who were ever pushing the frontier westward. Even then, Niagara was a thriving center of activity, a link between the busy East and the growing West, a young and energetic locality ready for new trade, agricultural and industrial development.

As a pioneer chemical manufacturer in the Niagara area and the first to produce several important chemicals in America, Niagara Alkali Company is applying the full force of its pioneering experience and energy to supplying increasing quantities of essential products for which there is a growing demand to fill vital wartime needs. Thus is Niagara Alkali carrying on the pioneering traditions of its background.

CAUSTIC POTASH · CAUSTIC SODA · PARADICHLOROBENZENE
CARBONATE OF POTASH · LIQUID CHLORINE

An Essential Part Of America's Great Chemical Enterprise

ARMY-NAVY E

Niagara ALKALI COMPANY

60 EAST 42nd STREET, NEW YORK 17, N. Y.

Hart C-P-P Ltd. Sales Mgr.

Ralph A. Hart, former district manager for the province of Ontario, Canada, for Colgate-Palmolive-Peet Co., Ltd., was recently appointed sales manager of the company. Twelve years ago Mr. Hart joined the company as a salesman, and was later raised to district sales manager. After that he spent four and one half years as managing director of the company in India.

Wyandotte Names Conkle

Fred A. Conkle, since 1940 sales manager and later general manager of William Lynn Chemical Co., Indianapolis, a distributor for products of Wyandotte Chemical Corp., has been named manager of the distributor sales department of Wyandotte Chemical Corp., Wyandotte, Mich., which covers both J. B. Ford and Michigan Alkali divisions. Mr. Conkle has sold road and materials handling machinery, and before joining Lynn Chemical he was sales manager for a rock asphalt firm. He will make his headquarters at Wyandotte, but will spend most of his time on the road.

Cowles Announces Appointments

Cowles Detergent Co., manufacturer of industrial alkalies, Cleveland, has appointed Clinton W. MacMullen, formerly of Rohm & Haas Co., and a Ph. D. from the University of Minnesota, technical director in charge of research and technical service programs. Other recent appointments to Cowles research and laboratory staffs are: Daniel A. Cook, a graduate of Massachusetts Institute of Technology, formerly of North American Rayon Corp.; Ruth M. Marsh, a graduate of the University of Chicago and Cornelius W. Pettinga, formerly of the faculty of the Chemistry Department of Syracuse University.

Davies-Young Announces Changes

Davies-Young Soap Co., Dayton, has announced the following changes in the make up of its organization: E. G. Eckerman, vice-president, who has been sales manager of the dry cleaning division, was recently appointed general sales manager of both bulk and dry cleaning division sales, and Dr. R. B. Trusler, head of the research department, has been appointed vice-president in charge of research and development. In his new capacity, Dr. Trusler will take on the additional duties of directing the new research laboratory, which was recently established.

E. G. ECKERMAN

Wood Containers for Detergents

A recent amendment to L-232, WPB order restricting use of wooden shipping containers, now permits the use of new wooden containers for shipment of liquid acidic scouring, cleansing compounds and detergents in carboys having a capacity of five gallons or more.

SOAP INDUSTRY MEETS

(*From Page 27*)

net situation now is that only a quarter of the industry is still affected by the present glycerine recovery rules. Dr. Lenth indicated that in view of the more favorable glycerine picture his division might look with favor on applications of soapmakers, even above the 150,000 lbs. per quarter exemption level, to use such oils as linseed and castor in soap without the necessity of recovering glycerine.

E. W. Ranson of the Soap and Glycerine Unit of OPA followed Dr. Lenth, and answered a set of questions on soap pricing problems. He repeated the familiar OPA advice that problems common to the industry be presented on an industry-wide basis. For the individual manufacturer selling the government, he indicated a possible avenue for some measure of price relief through application under PR-6. Depending on whether he is operating at a profit comparable to his 1936-1939 average, the government may revise its contract payments according to varying formulas. If the supplier's dollar profits on his entire operations are as much as 15 per cent above the base period level, he is entitled only to a price covering factory costs under his government contract. If he is currently operating below his 1936-39 profit level, he is entitled to receive costs plus a reasonable profit.

In response to another question Mr. Ranson indicated that CPR No. 1 does not apply to potash soaps. Sales of potash soaps to the army, he said, are definitely covered by price control GMPR. The complete list of questions and answers from both Dr. Lenth and Mr. Ranson is now being checked and will perhaps be released for publication in our next issue.

Russell Young was re-elected as chairman of the Potash Soap Division for the coming year, with Herbert Kranich of Kranich Soap Co., Brooklyn, again named vice-chairman, and Andrew P. Federline as secretary. Members of the executive and regional committees were reappointed by Mr. Young to serve for the coming year.

The following are members of the executive committee: J. L. Brenn, Huntington Laboratories, Inc., Huntington, Ind.; T. M. Galvin, Armour Soap Works, Chicago; A. Haas, Newell Gutradt Co., San Francisco; H. Kranich, Kranich Soap Co., Brooklyn; E. E. McDow, Antiseptol Co., Chicago; L. J. Oppenheimer, West Disinfecting Co., Long Island City; C. B. Solly, Harley Soap Co., Philadelphia; J. R. Walsh, Rochester Germicide Co., New York; R. H. Young, Davies-Young Soap Co., Dayton.

At the conclusion of the meeting Herbert Kranich, acting for the group, presented Mr. Federline, on their behalf, with a handsome traveling case in appreciation of his services to the section over the past year.

"coming in on both wings ... AND A Flare!"

In the pitch black darkness of a tropic night, it's hard to gauge how far down the surface of the seas may be... when you're flying thousands of feet in the air.

But Army and Navy pilots carry drift signal flares made by Triumph Explosives, Inc., of Elkton, Maryland, which are dropped from the airplane... flare up on contact with the water... indicate how far down the surface is... and show the wind direction and speed. These flares have proved invaluable for both emergency landings and on routine flights.

And where does Crown come in? Just take a look at the metal fins of the base in the close-up. Crown makes those for Triumph Explosives... a job far away from Crown's normal peacetime production... but a job that "illuminates" one more way Crown Can is working to win the war!

CROWN CAN COMPANY, New York • Philadelphia.
Division of Crown Cork and Seal Company, Baltimore, Md.

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BIDS AND AWARDS

N. Y. Navy Awards

The following two awards have been announced for miscellaneous supplies in a recent opening by the New York Navy Purchasing Office, New York: 30,000 glass jars camphor and soap liniment; Crystal Soap & Chemical Co., Philadelphia, with bids of 21.4c on items A, B and C; 22.53c on item D, and 22.64c on item E. Smolka Co., New York, entered the low bid of $2.20 on 100 soap dispensers which was accepted.

P. O. Toilet Soap Bids

In a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C., the following bids were received on an unspecified quantity of toilet soap: Swift & Co., Washington, 10.36c; Proctor & Gamble Distributing Co., Baltimore, 10.874c; Unity Sanitary Supply Co., New York, 20c, and William Messner Corp., New York, 12.5c.

Cleaning Compound Bids

Among the bidders on 5,500 gallons of cleaning compound in a recent opening for miscellaneous supplies by the New York Navy Purchasing Office were: Standard Oil Co. of N. J., New York, 18c; Paragon Oil Co., Brooklyn, 18.75, including $1 per drum; Socony-Vacuum Oil Co., New York, 20.273c, including $4 per drum, and R. M. Hollingshead Corp., Camden, N. J., 39c, including $1.25 per drum.

GPO Soap and Wax Bids

The following low bids have been announced on 40 drums of liquid soap and 178 pounds of candelila wax in recent openings by the Government Printing Office, Washington, D. C., for miscellaneous supplies: on 40 drums of liquid soap—James Good Co., Philadelphia, 43.75c a gallon, $4 each for drums; Penetone Corp., Tenafly, N. J., 35.5c, $6 each for drums; Crystal Soap & Chemical Co., Philadelphia, 35c, $5 for drums—the low bid; Harley Soap Co., Philadelphia, 36.4c; $5 for drums; R. M. Hollingshead Corp., Camden, N. J., 42c, $1.25 for drums; Dixie Janitor Supply Co., Washington, D. C., 49.5c, alternate 90c a gallon, $5 for drums; U. S. Sanitary Chemical Co., New York, 38c, $6 for drums, and Rose Chemical Co., New York, 54.8c, drums included.

On 178 pounds of candelila wax, Stevenson Bros. & Co., Chicago, 38.4c a pound, and Innis, Speiden & Co., New York, 36.5c.

Chadakoff P. O. Wax Bid Low

Chadakoff Chemical Products, Brooklyn, submitted a low bid of 98c on five gallons of liquid floor wax in a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C.

Mione Hand Soap Bid Low

Mione Manufacturing Co., New York, submitted a low bid of 4.88c on 23,328 pounds of paste hand soap in a recent opening for miscellaneous supplies by the Treasury Department Procurement Division, Washington, and the bid was accepted. Only other bidder was R. M. Hollingshead Corp., Camden, N. J., with a bid of 7.75c a pound in three-pound cans.

WFA Accepts Wrisley Soap Bid

In a special purchase by the War Food Administration, Washington, D. C., Allen B. Wrisley Distributing Co., Chicago, entered a bid of 16.3c a pound on 62,500 pounds of toilet soap, which was accepted.

N. Y. Navy Roach Powder Bids

Soilicide Laboratories, Montclair, N. J., submitted the low bids on four quantities of roach powder in a recent opening for miscellaneous supplies by the New York Navy Purchasing Office, N. Y. The bids were as follows: item 1, 1,000 pounds of type A powder, 23.5c; item 2, 3,000 pounds of type A powder, 22.5c; item 3, 1,000 pounds of type B tablets, 54c; and item 4, 2,000 pounds of type B tablets, 51c. Other bids submitted in the opening were received from: Parley F. Harris, Baltimore, with bids of 44c, item 1; 40c, item 2; 66c, item 3, and 62c, item 4. Unity Sanitary Supply Co., New York, bid: 55c on item 1; 52c on item 2; 60c on item 3 and 58c on item 4. A. G. Mattison, Portsmouth, N. H., bid: 26c on item 1 and 26c on item 2. Deco Products Co., New York, bid: 29.5c on item 1 and 28c on item 2.

Navy Degreasing Compound Bids

Among the low bids received in a recent opening for miscellaneous supplies by the New York Navy Purchasing Office, New York, were those on 3,000 gallons of degreasing liquid compound submitted by: Ampion Corp., Long Island City, N. Y., 44c, including 55 drums at $2 each; Penetone Corp., Tenafly, N. J., 46c, or $1.22 alternate including 55 drums at $1.10 each; Fuld Bros., Baltimore, 47c, including 55 drums at $1.10 each; J. A. Tumbler Labs., Baltimore, 51.2c, including 55 drums at $1,25 each; R. M. Hollingshead Corp., Camden, N. J., 58c, including 55 drums at $1.25 each; Sanitary Soap Co., Paterson, N. J., 60c, including 55 drums at $1.75 each; Magnus Chemical Co., Garwood, N. J., 83.2c, including 55 drums at $1.25 each, and Vestal Chemical Labs., St. Louis, $1.05.

Navy Soap Dispenser Bids

The following bids were received on 100 soap dispensers in a recent opening for miscellaneous supplies by the New York Navy Yard Purchasing Office, New York: Crane Co., Long Island City, N. Y., $225.00; and Unity Sanitary Supply Co., New York, $3.75 each.

Robinson Wyandotte Cincy Mgr.

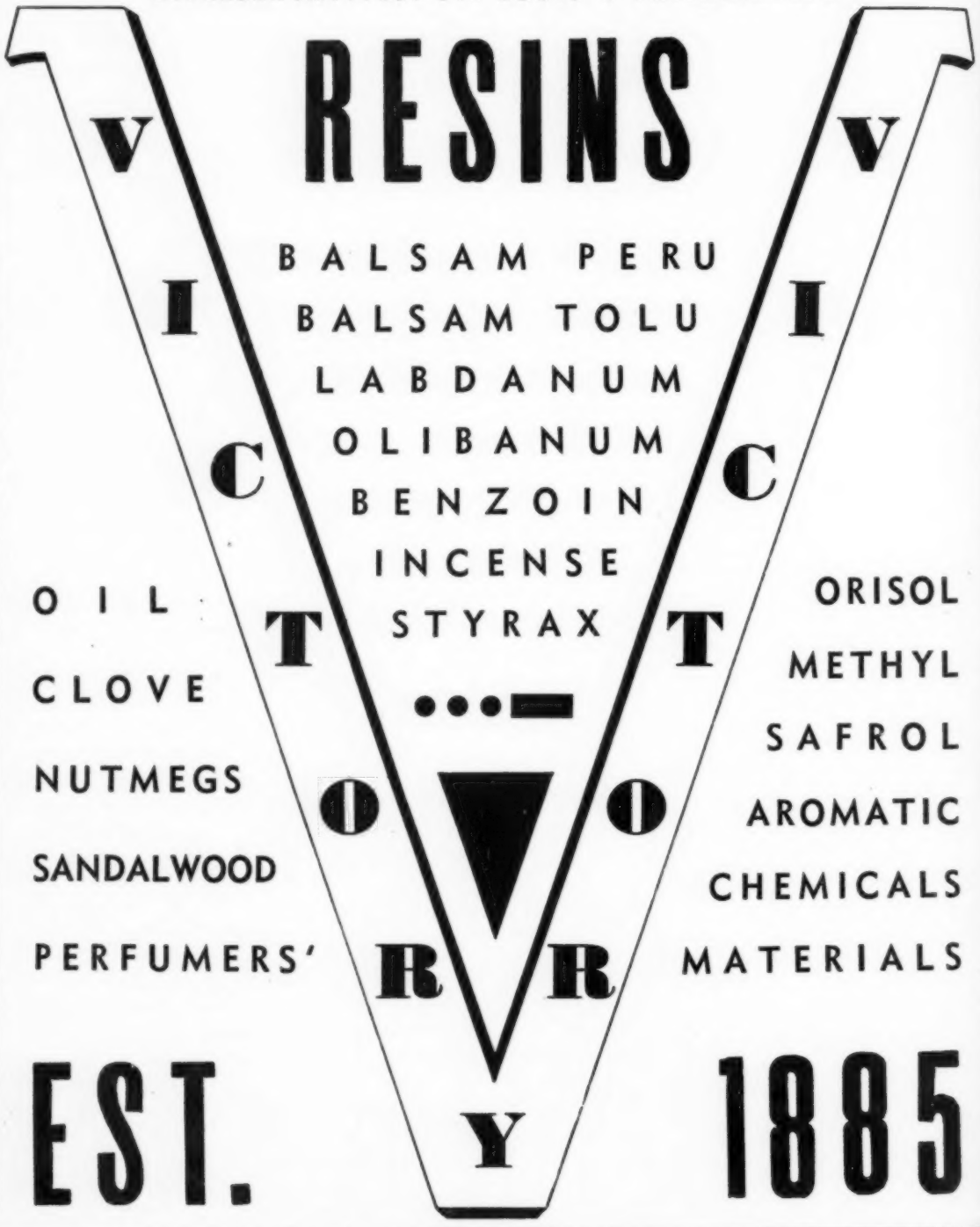
G. T. Robinson has recently been named manager of the Cincinnati Office of Wyandotte Chemicals Corp. (Michigan Alkali Division). He succeeds C. D. Morris who is now serving with the U. S. Merchant Marine. Mr. Robinson has been with Wyandotte since 1927, and for the past several years has been Central Regional Supervisor J. B. Ford Division, Cleveland.

GEORGE LUEDERS & CO.

427-429 WASHINGTON STREET, NEW YORK

CHICAGO • SAN FRANCISCO • MONTREAL

REPRESENTATIVES: ST. LOUIS • PHILADELPHIA



NEW TRADE MARKS

The following trade-marks were published in the January issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Mark Applications

OIL-SPUNJ — This in upper case, extra bold, italics letters for sweeping compounds. Filed Sept. 4, 1943 by Canfield Oil Co., Cleveland. Claims use since July 29, 1943.

NOPCO 99—This in upper case stencil letters for detergent compositions. Filed Nov. 3, 1943 by National Oil Products Co., Harrison, N. J. Claims use since April, 1938.

CHOCTAM—This in upper case bold letters for laundry detergent. Filed Nov. 8, 1943 by Wyandotte Chemicals Corp., Wyandotte, Mich. Claims use since Aug. 24, 1941.

REMOVERINE — This in upper case bold letters for liquid fabric cleaner. Filed Nov. 13, 1943 by Wilson Imperial Co., Newark, N. J. Claims use since 1915.

BOLERO — This in upper case bold letters for toilet soaps. Filed Nov. 16, 1943 by Les Parfums de Dana, Inc., New York. Claims use since 1933.

ROCIO—This in upper case bold letters for toilet soaps. Filed Nov. 16, 1943 by Les Parfums de Dana, Inc., New York. Claims use since 1933.

RCW—This in extra bold black letters for soap. Filed Nov. 19, 1943 by R. C. Williams & Co., New York. Claims use since Jan. 15, 1919.

FORMULA OD-30 ODORLESS DEODORANT—This in upper case bold upper case reverse and italics letters for industrial and commercial deodorant. Filed Mar. 16, 1943 by O. D. Chemical Corp., New York. Claims use since October, 1942.

KIL-A-WAG—This in bold upper case letters for earwigs and other insects poison. Filed June 26, 1943 by Kil-A-Wag Co., Portland, Ore. Claims use since Mar. 11, 1938.

NOPALCOL—This in upper case stencil letters for wetting and dispersing agent. Filed Nov. 3, 1943 by National Oil Products Co., Harrison, N. J. Claims use since December, 1934.

ACTRA — This in upper case black bold letters for tooth paste. Filed Nov. 12, 1943 by Actra Tooth Paste Co., New York. Claims use since Oct. 18, 1943.

Two black inverted chevrons on a shield design for automobile, floor and furniture polish. Filed Oct. 19, 1943 by Standard Oil Co. of Calif., Wilmington, Del. Claims use since Feb. 24, 1942.

PLASTISEAL—This in upper case black bold letters for bowling alley finish in the nature of a lacquer. Filed Nov. 10, 1943 by Brunswick-Balke-Collender Co., Chicago. Claims use since Oct. 24, 1941.

MARIA DANICA—This in upper case bold letters for soaps. Filed Sept. 28, 1943 by Maria Danica Laboratories, New York. Claims use since December, 1939.

CHRISTMAS TREE — This in upper case bold letters for toilet soap. Filed Nov. 4, 1943 by Pinaud, Inc., New York. Claims use since Oct. 21, 1943.

TOI ET MOI—This in upper and lower case medium letters for toilet soap. Filed Nov. 4, 1943 by Pinaud, Inc., New York. Claims use since Oct. 13, 1943.

PEMCO — This in upper case stencil letters for metal cleaner. Filed Nov. 5, 1943 by Pemco Corp., Baltimore. Claims use since 1929.

ROBERTA—This in upper case letters for mosquito and chigger repellent cream. Filed July 21, 1943 by B & B Toiletries, Chicago. Claims use since June 15, 1935.

KV&D — This in upper case bold letters on the outline of an egg for medicated nest egg for killing vermin and for use as a disinfectant. Filed Oct. 23, 1943 by Booth Chemical Laboratories, Gallatin, Tenn. Claims use since Aug. 15, 1943.

ASSASSIN—This in upper case bold letters for ant poison. Filed Oct. 30, 1943 by City Chemical Co., Auburn, Ala. Claims use since July 1, 1938.

FAST-TO—This in upper case letters above and beside a fanciful design for metal, machinery and hand cleaner. Filed Aug. 12, 1943 by Vladimir M. Petcoff, Detroit. Claims use since June, 1942.

AUNT SUE'S — This in upper and lower case extra bold letters for dry cleaner. Filed Aug. 20, 1943 by Penn-Champ Oil Corp., Butler, Pa. Claims use since June 30, 1935.

OTT-O-CLEANSER—This in upper and lower case letters above the fanciful design of a Dutch boy carrying a long handled scrub brush for metal cleaner. Filed Sept. 10, 1943 by A. Gusmer, Inc., Hoboken, N. J. Claims use since Aug. 23, 1943.

DISHEZE — This in upper case bold black letters for dishwashing compound. Filed Oct. 4, 1943 by Acme Chemical Co., Milwaukee. Claims use since Feb. 1, 1933.

LUSTRIN—This in upper case extra bold letters for cleaning and polishing compound for glass. Filed Oct. 4, 1943 by Acme Chemical Co., Milwaukee. Claims use since Jan. 1, 1927.

SOAX—This in upper case black bold letters for household cleaning and polishing compound. Filed Oct. 28, 1943 by Royal Lace Paper Works, Brooklyn. Claims use since Oct. 12, 1943.

FOL AMOUR — This in upper case letters for toilet soap. Filed Nov. 4, 1943 by Pinaud, Inc., New York. Claims use since Oct. 13, 1943.

PERFUMO—This in upper case extra bold letters for spray deodorant and disinfectant. Filed Oct. 4, 1943 by Acme Chemical Co., Milwaukee. Claims use since Feb. 1, 1943.

ACME SHINE—This in upper case bold letters for water-resistant polishing wax. Filed Oct. 4, 1943 by Acme Chemical Co., Milwaukee. Claims use since Oct. 15, 1941.

Civet Paste W

This unsurpassed fixative is twice as strong as natural civet and equal to Extrol Civet.

•

Does not have the tendency to discolor as does the natural.

•

Disadvantages of the natural civet are eliminated, the non-active waxes and other extraneous materials being absent.

SCHIMMEL & CO., INC.
601 West 26th Street
New York 1, N. Y.

Chicago • Cincinnati • Los Angeles • San Francisco • St. Louis

MAID O' THE MIST—This in upper case bold and light letters for soap. Filed Oct. 10, 1942 by Larkin Store Corp., Buffalo. Claims use since 1901.

FILMON — This in upper case letters on a fanciful design upheld by two hands for protective hand coating. Filed Sept. 19, 1943 by Filmon Co., Buffalo. Claims use since June 1, 1943.

EASY WAY—This in bold upper and lower case script letters for bleaching germicide disinfectant compound. Filed Oct. 20, 1943 by Easy Way Products Co., Norwalk, Conn. Claims use since May 1, 1942.

HERBICIDOL — This in upper case bold letters for liquid weed killers. Filed Oct. 21, 1943 by Reade Manufacturing Co., Jersey City, N. J. Claims use since June 26, 1939.

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Trade Marks Granted

404,797. Insect repellent. Filed by Becker-Bischoff Chemical Co., St. Louis, Mo., July 31, 1943. Serial No. 462,408. Published Oct. 5, 1943. Class 6.

404,798. Detergents. Filed by Turco Products, Inc., Los Angeles, Aug. 2, 1943. Serial No. 462,465. Published Oct. 12, 1943. Class 4.

404,800. Shaving cream, shaving soap and toilet soap. Filed by Parfums Charbert, Inc., New York, Aug. 4, 1943. Serial No. 462,145. Published Oct. 12, 1943. Class 4.

404,804. Insecticides. Filed by Geigy Co., New York, Aug. 6, 1943. Serial No. 462,555. Published Oct. 12, 1943. Class 6.

405,264. Detergent and cleaning preparation. Filed by Drew Laboratories, Chicago, May 10, 1943. Serial No. 460,520. Published Nov. 9, 1943. Class 4.

405,270. Brushless shaving cream. Filed by Middlebrooke Lancaster, Inc., Brooklyn, June 11, 1943. Serial No. 461,321. Published Nov. 9, 1943. Class 4.

405,299. Scouring Pads. Filed by Tudor Products, Inc., New York, Aug. 28, 1943. Serial No. 463,085. Published Nov. 9, 1943. Class 4.

405,301. Soap powder. Filed by Selig Co., Atlanta, Ga. Serial No. 463,106. Published Nov. 9, 1943. Class 4.

405,308. Preparation for cleaning and polishing metal. Filed by Fal Products Co., Philadelphia, Sept. 16, 1943. Serial No. 463,439. Published Nov. 9, 1943. Class 4.

405,311. Metal polish and cleaner. Filed by United Chemical Co., Kansas City, Mo., Sept. 16, 1943. Serial No. 463,339. Published Nov. 9, 1943. Class 4.

404,974. Insecticides. Filed by O-Cedar Corp., Chicago, Mar. 4, 1940. Serial No. 429,192. Published Oct. 19, 1943. Class 6.

404,978. Liquid agricultural disinfectant and insecticide. Filed by Dr. Salsbury's Laboratories, Charles City, Iowa, Oct. 8, 1941. Serial No. 447,617. Published Nov. 25, 1941. Class 6.

404,985. Cleansing compound. Filed by Antiseptol Co., Chicago, Oct. 26, 1942. Serial No. 456,412. Published Oct. 19, 1943. Class 4.

405,000. Skin protective lotion. Filed by Mitts Mfg. Co., Brooklyn, April 14, 1943. Serial No. 459,882. Published Oct. 26, 1943. Class 6.

405,001. Aromatic chemical for use in soaps, etc. Filed by Dow Chemical Co., Midland, Mich., Apr. 16, 1943. Serial No. 459,921. Published June 22, 1943. Class 6.

405,009. Scouring cleanser. Filed by Colgate-Palmolive-Peet Co., Jersey City, N. J., May 25, 1943. Serial No. 460,891. Published Oct. 19, 1943. Class 4.

405,014. Liquid preparation for cleaning and polishing shoes. Filed by Griffin Mfg. Co., Brooklyn, June 19, 1943. Serial No. 461,509. Published Oct. 19, 1943. Class 4.

405,029. Soap. Filed by John T. Stanley Co., New York, July 17, 1943. Serial No. 462,149. Published Sept. 28, 1943. Class 4.

405,064. Composition for use as antiseptic germicide, deodorant and disinfectant. Filed by Joseph K. Fisher, Columbus, O., Aug. 18, 1943. Serial No. 462,819. Published Oct. 26, 1943. Class 6.

405,065. General purpose cleaning compound. Filed by Solvay Process Co., New York, Aug. 18, 1943. Serial No. 462,828. Published Oct. 19, 1943. Class 4.

405,182. Mosquito and gnat repellent. Filed by Wisconsin Pharmacal Co., Milwaukee, Aug. 19, 1943. Serial No. 462,864. Published Nov. 2, 1943. Class 6.

405,185. Fur cleaning compound. Filed by Maizo Mills Co., Circleville, O., Aug. 21, 1943. Serial No. 462,923. Published Nov. 2, 1943. Class 4.

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Barton Parento Director

E. C. Barton, vice-president and general manager of Compagnie Parento, Inc., New York and Canada, has recently announced the appointment of John M. Quigg as managing director of Compagnie Parento, Ltd., Toronto. Mr. Quigg has been with the Parento Canadian division since its organization. Mr. Barton, who has been with Parento since 1927, was responsible for the establishment of Compagnie Parento, Ltd., in Toronto, in 1932. He returned to New York in mid-1943 in active charge of both the American and Canadian divisions.

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Offer New Hand Protective

Jones Medical Laboratories, Inc., 800 Huron Road, Cleveland, O., has announced a new liquid hand-protective product, "Neo-Film," for use as a "visible glove" by industrial workers exposed to toxic substances which might cause dermatitis. "Neo-Film" is a liquid, and is easily removed with soap and water after work.

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Third "E" To Hooker

Hooker Electrochmeical Co., Niagara Falls, N. Y., has been awarded the Army-Navy Production Award for the third time, the company announced recently upon receipt of a letter from Under Secretary of War Robert P. Patterson. The award is symbolized by the addition of a second white star to the company's "E" flag.

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Another Shulton Man Drafted

Harold McGann, Brooklyn and Long Island salesman for Shulton, Inc., New York toiletries house, was inducted into the U. S. Army Dec. 4.

CITRONELLA OIL ARTIFICIAL

SPANISH ROSEMARY

SPANISH SPIKE LAVENDER

ARTIFICIAL SASSAFRASS

For many years much of the research and development work of our laboratory has been devoted to the perfumery problems of the soap and sanitary chemicals industry. As a result we have been able to supply synthetic products successfully to relieve shortages caused by war conditions. Why not consult us regarding your problems? Samples upon request.

ESSENTIAL OILS and SYNTHETICS

BERGAMOT
CASSIA
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RAW MATERIAL MARKETS

As of February 1, 1944

STATING that government estimates of fats and oils needed by soap manufacturers in the first three months of 1944 are 518 million pounds, Dr. C. W. Lenth, Chief of the Soap and Glycerine division of the Food Distribution Administration, told soapers at their recent annual meeting that this total would be met in the first quarter of the year. He pointed out that of the 518 million pounds of fats required, 70 million pounds would be for military soap requirements—which amount to around 16 per cent of the total soap output and representing a higher percentage than ever before. Fats available to soap makers, enabling them to continue their high levels of production in the first quarter, total around 520 million pounds; 315 million pounds of tallow and grease, 45 million pounds of coconut oil, 40 million pounds of foots and about 120 million pounds of miscellaneous fats and oils such as lard, edible tallow, vegetable oils and fish oil.

Beyond the first quarter, Mr. Lenth would not give precise information as to the outlook for fats and oils for the soap maker. He did say that there "appeared" to be a need for use of linseed and castor oil in the making of soap, two oils that are thought to be in rather good supply. In the absence of any figures as to what the exact oil situation might be in four or more months, no stated amount of how much linseed or castor soap makers might be expected to use. This use of linseed in soap idea is not new with Washington officials, and was offered as a possible remedy for the fats and oils situation over a year ago, when the supply outlook was particularly gloomy. The fact that British soap makers are required to use 20 per cent linseed oil in their formulae was mentioned. Soap makers were asked to consider using as much linseed and castor oil as possible, and were told of a current survey of hydrogenation facilities being made in an effort to determine how much linseed can be hardened. Potash soap makers were advised that since they can use linseed oil without hardening, they will be allowed very small quantities of soybean and other vegetable oils to stimulate the use of linseed and castor.

In the direction of determining the feasibility of using greater quantities of linseed oil during 1944, a report by a soap industry committee was to be made Feb. 2 and 3. The report is intended to cover facilities for the use of linseed existing in the industry and what effect the ingredient may have in increasing the cost of production of soft soaps. In giving the latest figures on the amounts of fats and oils which will be available for the nation's soap kettles during the current calendar year, a committee announcement pointed out that two million pounds of linseed oil have been allocated for soap making. It was said preliminary discussion prior to the appointment of the committee revealed the opinion that a minimum of 15 per cent linseed oil could be used in the manufacture of certain soft soaps. The objections pointed out were that the ingredient has a strong tendency to develop a disagreeable odor and limited available hydrogen-action capacity.

On Jan. 24, the War Food Administration by amendment to FDO 53 removed saponified (undistilled) red oil from specific allocation control and issued instead an order requiring producers to "set-aside" on the first of each month an amount equal to 1/3 of their previous month's production. The change, effective Feb. 1, was made because supplies of red oil are now adequate. After Feb. 1, the announcement states: "saponified red oil cannot be delivered for the production of liquid, industrial laundry or household laundry soap prior to the 16th of each month and then only if the producer has made provision to fill all certified orders.

Carbon tetrachloride, formerly under limited control, has been placed under full allocation control, the WPB announced late last month. The carbon tetrachloride allocation order M-363 excludes from its restrictions those distributors who sell the chemical in quantities of a drum (700 pounds) or less per month to each customer. Beginning Feb. 1, all other deliveries must be authorized in writing by WPB. Deliveries of 7,000 pounds or more of carbon tetrachloride in any one month must be individually authorized. Deliveries to customers ordering between 700 and 7000 pounds per month will be authorized on the basis of end use stated in the required customers' certificates to distributors. A lump sum will be allocated to each end use without specifying individual customers' names. Deliveries to customers who order 700 pounds or less will be authorized by allocating a lump sum for such small orders, without specifying the customers' names and without reference to end use.

The problem of obtaining perfuming materials for soap is becoming increasingly acute with the war partially or entirely cutting the United States off from former foreign sources and price ceilings acting as a deterrent on the raising of domestic materials. With such former large scale producers as Ceylon and Java cut off from us, and France and Spain out of the picture now and probably for some time after the end of the European aspect of the war, the problem grows more acute daily. Domestic production of cedar and sassafrass is off because the lure of high wages in factories has drained considerable manpower from farms raising these materials. At the same time, no really substantial shipments have come through from countries retaken by the Allies.

O. K. SOLDIER,

YOU'RE GOOD AS NEW

Hundreds of thousands of yards of surgical adhesive tape are being used by our armed forces to top dress a hundred and one minor and major wounds, cuts, scratches.

Into the manufacture of this vast yardade of adhesive tape go great quantities of Lanolin USP. That's why Lanolin USP and other grades of Lanolin, Degras and Wool Grease have been placed on allocation . . . to make sure war needs are met first.

Some manufacturers have been asked to do without or with less Lanolin and Wool Grease so that it can be used for this and many other vital war purposes to help hasten the day of victory. The sooner it comes, the faster you can have all the Nimco Brand Lanolin, Degras and Wool Grease you want.

Lanolin and Wool Greases Help Fight for Victory

BUY WAR BONDS

and support the fight

MALMSTROM · NIMCO BRAND · LANOLIN

N. I. MALMSTROM & CO.

America's Largest Suppliers of

LANOLIN • Anhydrous U.S.P. • Hydrous U.S.P. • Absorption Base • Technical

DEGRAS • Neutral and Common • Wool Greases

147 LOMBARDY STREET • BROOKLYN, NEW YORK

RAW MATERIAL PRICES

(As of February 1, 1944)

Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.

Chemicals

Acetone, C. P., drums	lb.	$ .08½	$ .09
Acid, Boric, bbls., 99½%	ton	109.00	126.00
Cresylic, drums	gal.	.81	.83
Low boiling grade	gal.	.81	.83
Muriatic, C.P., carboys	lb.	.06½	—
Oxalic, bbls.	lb.	.11¼	.12½
Alcohol, Ethyl, drums	gal.	11.94½	11.98
Complete Denat., SDI, dms., ex.	gal.	.62	.64
Alum. Potash lump, bbls.	lb.	.04½	—
Ammonia Water, 26°, drums	lb.	.02¼	.02½
Ammonium Carbonate, tech., drums	lb.	.08½	.09¼
Bentonite	ton	11.00	16.00
Bleaching Powder, drums	100 lb.	2.50	3.75
Borax, pd., bbls., bags	ton	50.00	76.00
Carbon Tetrachloride, car lots	gal.	.60	1.17
L. C. L.	gal.	.80	1.27
Cresol, U.S.P., drums	lb.	.10¾	.11¾
Cresote Oil	gal.	.15½	—
Feldspar, works	ton	14.00	20.50
Formaldehyde, bbls.	lb.	.05½	.06¼
Fullers Earth	ton	8.50	15.00
Glycerine, C.P., drums	lb.	.18¾	.19¼
Dynamite, drums	lb.	.18¼	.18¾
Saponification, drums	lb.	.12¾	.14¾
Soap lye, drums	lb.	.11½	—
Lanolin, U.S.P., hydrous, drums	lb.	.32½	.34
Anhydrous, drums	lb.	.34	.35½
Lime, live, bbls.	ton	6.25	16.00
Mercury Bichloride, drums	lb.	2.34	2.39
Naphthalene, ref. flakes, bbls.	lb.	.08	.08¼
Orthodichlorbenzene	lb.	.07	.08
Paradichlorbenzene, drums	lb.	.11	.15
Petrolatum, bbls. (as to color)	lb.	.021	.08
Phenol (Carbolic Acid) drums	lb.	.10	.10¾
Pine Oil, drums	gal.	.62	.73
Potash, Caustic,solid	lb.	.06¼	.06¾
Flake, 88-92%	lb.	.07	.07½
Liquid, 45% basis	lb.	.03	.03½
Potassium Carbonate, solid	lb.	.06½	.06¾
Liquid	lb.	.05½	.05¾
Pumice Stone, coarse	lb.	.03⅜	.04¼
Rosins (net wt., ex dock, New York)—			
Grade D to H	100 lb.	4.32	4.78
Grade 1 to N	100 lb.	4.78	5.12
Grade WG to X	100 lb.	6.96	7.17
Rotten Stone, dom., bags	lb.	.0128	.019
Silica	ton	17.00	38.00
Soaps—			
Tallow Chip, 88%	lb.	.11	.11⅝
Powder, 92%	lb.	.11⅜	.12
Powdered, White Neutral	lb.	.25½	.42
Olive Oil Paste	lb.	.40	—
Shampoo Base	lb.	.18	.20
Liquid Concentrate, 30-32%	gal.	.75	.79
Soda Ash, cont., wks., bags, bbls.	100 lb.	1.15	3.25
Car lots, in bulk	100 lb.	.90	.95
Soda, Caustic, cont., wks. solid	100 lb.	2.30	3.55
Flake	100 lb.	2.70	5.70
Liquid, tanks, 47-49%	100 lb.	1.92½	1.95
Soda Sal., bbls.	100 lb.	1.20	1.40
Sodium Chloride (Salt)	ton	14.20	18.00
Sodium Fluoride, bbls.	lb.	.07	.08
Sodium Bisulfate	100 lb.	2.20	2.40
Sodium Metasilicate, anhyd.	100 lb.	4.00	5.30
Granulated	100 lb.	2.50	3.55
Sodium Pyrophosphate	100 lb.	5.25	5.75
Sodium Silicate, 40 deg., drum	100 lb.	.80	1.20
Drums, 52 deg. wks.	100 lb.	1.40	1.80
Tar Acid Oils, 15-25%	gal.	.27½	.33½
Triethanolamine	lb.	.19	.20
Trisodium Phosphate, bags, bbls.	100 lb.	2.70	3.25

Oils — Fats — Greases

Babassu, tanks, futures	lb.	.1110	Nom.
Castor, No. 1, bbls.	lb.	.1300	—
No. 3, bbls.	lb.	.1375	.1425
Coconut (without excise tax)			
Manila, tanks, N. Y.	lb.	.0835	—
Tanks, Pacific Coast, futures	lb.	No Prices	
Copra, bulk, coast	lb.	No Prices	
Corn, tanks, West	lb.	.12¾	—
Cottonseed, crude, tanks, mill	lb.	.12¾	—
PSY, futures	lb.	.14	—
Fatty Acids—			
Corn Oil, tanks, Chicago	lb.	.14	.14½
Coconut Oil, tanks, Twitchell, Chi.	lb.	.18	.18½
Cotton Oil, tanks, Chicago	lb.	.13½	—
Settled soap stock, Chicago	lb.	.03⅞	.04
Boiled soap stock, 65%, Chi.	lb.	.04⅞	.05
Foots, 50%, Chicago	lb.	.03¼	.03½
Castor Oil, split, tanks, N. Y.	lb.	.20¾	.21¼
Linseed Oil, split, tanks, N. Y.	lb.	.1530	—
Distilled	lb.	.21½	.22
Myristic acid, distilled, tanks, N.Y.	lb.	.19	.19½
Palm Oil, white tanks, N. Y.	lb.	.13	.13½
Single distilled	lb.	No Prices	
Soybean Oil, split, tanks, N. Y.	lb.	.1175	—
Distilled	lb.	.17¾	.18½
Red Oils, bbls., dist. or sapon	lb.	.1325	.1475
Tanks	lb.	.12½	—
Stearic Acid, saponif.			
Double pressed	lb.	.15⅞	.16¾
Triple pressed	lb.	.18⅝	.19⅝
Greases, choice white, tanks	lb.	.08⅞	—
Yellow	lb.	.08¼	—
Lard, city, tubs	lb.	.1400	—
Linseed, raw, bbl.	lb.	.1530	—
Tanks, raw	lb.	.1470	—
Olive, denatured, bbls., N. Y.	gal.	4.10	4.20
Foots, bbls., N. Y.	lb.	No Prices	
Palm, Sumatra, cif. New York, tanks	lb.	No Prices	
African, tanks, ex. ship	lb.	.08¼	Nom.
Palm, kernel	lb.	No Prices	
Peanut, crude, tanks, mill	lb.	.13	Nom.
Soya Bean, domestic, tanks, crude	lb.	.11¾	Nom.
Stearin, oleo, bbls.	lb.	.1054	—
Tallow, special, f.o.b. N. Y.	lb.	.08½	—
City, ex. loose, f.o.b. N. Y.	lb.	.08⅝	—
Teaseed Oil, crude	lb.	.29	Nom.

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The high degree of uniformity assured by the Proctor Flake Soap System results from a combination of many elements in design and improved construction. For example, the rigidity of the flaking roll has been increased, because it was found that to produce thin, uniform chips there must be no vibration. The feed roll is so designed as to exert the necessary pressure on the chilling roll, to make a thin flake of uniform density and thickness. The cooling system is designed to meet the requirements of quick and more uniform chilling. Utmost precision is maintained in the production of these parts in Proctor & Schwartz shops. The unretouched photograph, above, of ribbons taken at random from a Proctor machine gives some idea of the perfect uniformity of results that this system assures.

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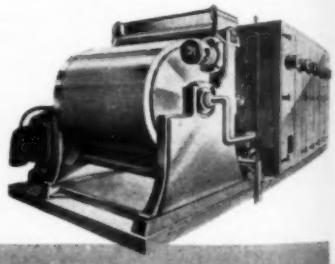


PROCTOR FLAKE SOAP SYSTEM

Manufactured by

PROCTOR & SCHWARTZ • INC • PHILADELPHIA, PA.

(As of February 1, 1944)

Essential Oils

Almond, Bitter, Artificial	lb.	$ .85	$ .98
Bitter, F.F.P.A.	lb.	5.25	7.00
Sweet, cans	lb.	2.00	2.75
Anise, cans, U.S.P.	lb.	3.50	4.00
Bay, 55-60% phenols, cans	lb.	1.60	1.90
Bergamot, coppers, S.A.	lb.	8.25	—
Artificial	lb.	2.25	4.50
Birch Tar, rect., cans	lb.	3.00	3.25
Crude, cans	lb.	2.00	2.25
Bois de Rose, Brazilian	lb.	4.75	5.75
Cayenne	lb.	1.05	—
Cade (juniper tar), drums	lb.	1.35	1.50
Cajeput, tech., drums	lb.	1.55	2.25
Calamus, cans	lb.	22.50	35.00
Camphor, Sassy, drums	lb.	—	—
White, drums	lb.	.48	—
Cananga, native, cans	lb.	8.10	8.75
Rectified, cans	lb.	8.90	11.00
Cassia, Redistilled, U.S.P.	lb.	10.50	12.50
Cedar Leaf, cans	lb.	1.10	1.45
Cedar Wood, light, drums	lb.	.55	.70
Citronella, Java, drums	lb.	2.50	2.80
Citronella, Ceylon, drums	lb.	.90	1.05
Clove, U.S.P., cans	lb.	1.65	1.75
Eucalyptus, Austl., U.S.P., cans	lb.	1.02	1.18
Fennel, sweet, cans	lb.	3.00	3.50
Geranium, African, cans	lb.	13.00	16.00
Bourbon, cans	lb.	13.00	16.00
Turkish (Palmarosa)	lb.	5.00	6.00
Hemlock, cans	lb.	1.25	1.45
Lavender, 30-32% ester cans	lb.	7.50	—
Spike, Spanish, cans	lb.	3.60	4.75
Lemon, Ital., U.S.P.	lb.	—	—
Cal.	lb.	3.25	—
Lemongrass, native, cans	lb.	1.15	1.30
Linaloe, Mex., cases	lb.	3.25	3.75
Nutmeg, U.S.P., cans	lb.	4.50	7.00
Orange, Sweet, W. Ind., cans	lb.	4.00	5.00
Italian cop	lb.	—	—
Distilled	lb.	.75	.78
California, expressed	lb.	1.00	1.50
Origanum, cans, tech.	lb.	2.40	3.25
Patchouli	lb.	6.60	8.50
Pennyroyal, dom.	lb.	—	—
Imported	lb.	3.00	4.10
Peppermint, nat., cans	lb.	6.00	—
Redis., U.S.P., cans	lb.	6.35	—
Petitgrain, S. A., cans	lb.	1.50	2.00
Pine Needle, Siberian	lb.	3.10	3.50
Rosemary, Spanish, cans	lb.	1.90	2.00
drums	lb.	1.50	1.65
Sandalwood, dom., dist., U.S.P.	lb.	6.25	6.75
Sassafras, U.S.P.	lb.	1.90	2.35
Artificial, drums	lb.	1.25	1.40
Spearmint, U.S.P.	lb.	4.00	—
Thyme, red, N.F.	lb.	2.50	3.25
White, N.F.	lb.	2.65	4.00
Vetiver, Java	lb.	25.00	45.00
Ylang Ylang, Bourbon	lb.	—	—

Aromatic Chemicals

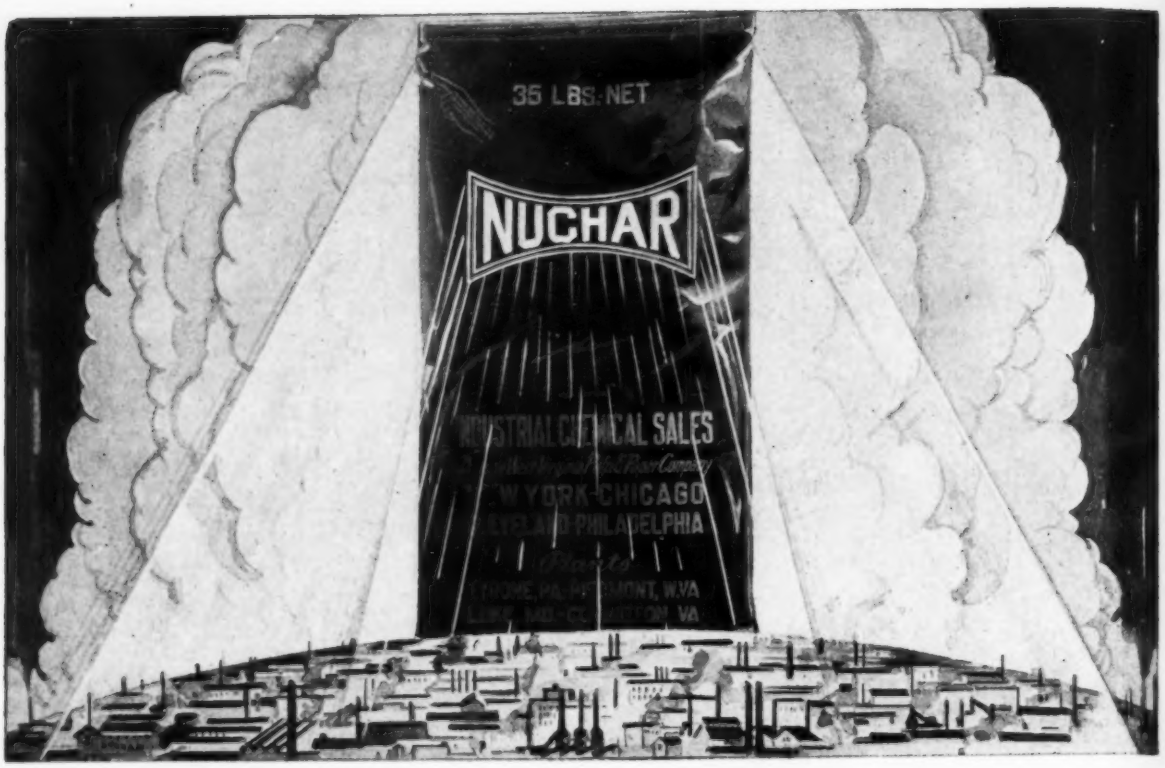
Acetophenone, C. P.	lb.	$ 1.55	$ 1.60
Amyl Cinnamic Aldehyde	lb.	2.00	5.00
Anethol	lb.	1.85	2.35
Benzaldehyde, tech.	lb.	.45	.55
N. F. VI	lb.	.85	.98
Benzyl, Acetate	lb.	.60	Nom.
Alcohol	lb.	.68	.75
Citral	lb.	2.85	5.00
Citronellal	lb.	2.75	3.25
Citronellol	lb.	6.00	7.00
Citronellyl Acetate	lb.	8.60	8.60
Coumarin	lb.	2.75	3.25
Diphenyl oxide	lb.	.48	.63
Eucalyptol, U.S.P.	lb.	2.50	3.25
Eugenol, U.S.P.	lb.	2.50	3.05
Geraniol, Soap	lb.	2.50	3.00
Other grades	lb.	3.50	4.00
Geranyl Acetate	lb.	—	—
Heliotropin	lb.	3.25	3.50
Hydroxycitronellal	lb.	8.50	9.00
Indol, C. P.	lb.	26.00	27.50
Ionone	lb.	3.40	5.75
Isoborneol	lb.	.81	1.10
Iso-borynl acetate	lb.	.85	1.00
Iso-Eugenol	lb.	3.90	4.00
Linolool	lb.	6.60	8.00
Linalyl Acetate	lb.	5.50	7.25
Menthol, natural	lb.	—	—
Synthetic, U.S.P.	lb.	13.00	19.00
Methyl Acetophenone	lb.	1.60	—
Anthranilate	lb.	2.20	2.50
Paracresol	lb.	—	—
Salicylate, U.S.P.	lb.	.40	.92
Musk Ambrette	lb.	9.50	14.00
Ketone	lb.	4.50	14.00
Xylol	lb.	1.40	2.90
Phenylacetaldehyde	lb.	2.60	3.00
Phenylacetic Acid	lb.	1.60	3.00
Phenylethyl Alcohol	lb.	2.38	2.75
Rhodinol	lb.	—	—
Safrol	lb.	1.35	1.75
Terpineol, C.P., dra.	lb.	.37	—
Cans	lb.	.42	—
Terpinyl Acetate, 25 lb. cans	lb.	.95	1.15
Thymol, U.S.P.	lb.	2.60	Nom.
Vanilin, U.S.P.	lb.	2.60	2.90
Yara Yara	lb.	1.83	2.00

Insecticide Materials

Insect Powder, bbls.	lb.	.29	.30
Pyrethrum Extract			
20 to 1	gal.	5.75	—
30 to 1	gal.	8.53	—
Derris, powder—4%	lb.	.31	—
Derris, powder—5%	lb.	.35	—
Cube, powder—4%	lb.	.31	—
Cube, powder—5%	lb.	.35	—
Squill, red, dried	lb.	.85	.88

Waxes

Bees, white	lb.	.57	.63
African, bgs.	lb.	.3750	—
Refined, yel.	lb.	.5250	.6050
Candelilla, bgs. (crude)	lb.	.38	—
Carnauba No. 1, yellow	lb.	.8325	.8925
No. 2, N. C.	lb.	.7575	.8175
No. 3, Chalky	lb.	.7125	.7725
Ceresin, yellow	lb.	.13½	.18
Montan Wax, bags	lb.	.45	.46
Paraffin, ref., 125-130	lb.	.0520	.0560



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Your technical staff will find active carbon a useful tool in your processes. Consult with us regarding the grade of Nuchar best fitted to your needs and we will send you a generous working sample.

Nuchar Active Carbons ★ *Abietic Acid* ★ *Snow Top Precipitated Calcium Carbonate* ★ *Liquid Caustic Soda* ★ *Chlorine* ★ *Lignin* ★ *Liqro Crude Tall Oil* ★ *Indusoil Distilled Tall Oil* ★ *Tall Oil Pitch* ★ *Sulphate Wood Turpentine*

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PRODUCTION SECTION

A section of SOAP devoted to the technology of oils, fats, and soaps published prior to Jan. 1, 1932, as a separate magazine under the title, Oil & Fat Industries.

Refining Crude Glycerine

SOAP-LYE glycerine crudes give a lower distillation efficiency figure than saponification crudes, mainly due to the former's higher content of nonvolatile impurities. Crudes from waste fats are usually dark colored and have a high percentage of organic impurities; in such cases pretreatment with sodium aluminate followed by filtration is recommended.

When the raw material has been fats or lyes which have undergone fermentative decomposition, it is likely that trimethylene glycol (normal propylene glycol) will be present. This compound is undesirable, particularly in dynamite glycerine, because its nitro derivatives are unstable. It is difficult to separate from the glycerol except by repeated fractionation. Its presence is indicated by low specific gravity and a high percentage of glycerol when estimated by an oxidation method, of either the crude or the distilled glycerine.

The presence of sodium chloride in the distillate is due to entrainment and suggests that the rate of distillation or the liquor level in the still has been too high. In order to prevent the accumulation of impurities which will eventually contaminate the distillate, it is necessary to keep a close watch for variations in the chemical analysis of sweetwaters, press washings, residues, etc., that are returned to the process for recycling. It may be necessary to by-pass them for a period in order to purify the system.

If acids from the catalyst are present, these may be neutralized with 0.2-0.4 per cent of Na_2O. With good quality soap-lye crudes, much less may be required, but with saponification crudes the requirement is likely to be very near the higher limit or may possibly exceed it.

Distillation

The usual practice is to carry out the distillation at about 50 mm. of mercury pressure in the still, with a temperature of 175-195° C., depending on the type of still used. Under these conditions a considerable proportion of weak glycerine is obtained, which has to be concentrated in a vacuum pan, or if the volume of this fraction is reduced there is a corresponding deterioration in the quality of the high-gravity fractions. Consequently it is often necessary to redistil the best fractions in order to produce the chemically pure grade of glycerine. Developments in the process have been toward using a lower distillation pressure with a corresponding reduction in the temperature and in the amount of injected steam. By close control of the temperatures in the successive condensers it is possible to obtain chemically pure glycerine in one distillation and at the same time to keep the quantity of weak distillate so small that it is more satisfactory to return it to the evaporator than to operate a separate vacuum pan for its concentration.

The new high-vacuum stills work at a pressure between 10 and 15 mm. of mercury, and the distilling temperature is about 20° C. lower than in stills operating at 50 mm. These conditions reduce the amount of polymerization. If the plant is designed for continuous distillation it permits constant conditions to be maintained in the still and the condensers, which are usually three in number. The amount of injected steam is claimed to be only 25 per cent of that required for the old type stills.

Decolorization

Glycerine is usually decolorized by mixing with carbon at a temperature of 70-80° C., followed by filtration. To refine glycerine with a carbon of good quality, 0.5 per cent of adsorbent should be sufficient. Because of stringent specifications for glycerine of both dynamite and chemically pure grades, the choice of carbon is important. Although the material may decolorize the glycerine, it may also, if carelessly chosen, be a source of contamination in other respects. A typical grade of carbon for glycerine refining is neutral, contains not less than 95 per cent of carbon, not more than 3.5 per cent of ash, and not more than 2.5 per cent of acid-soluble matter. It is soft, finely pulverized and highly porous. J. L. Boyle. *Manufacturing Chemist* 14, 355-7 (1943).

As a guide to the complex field of the autoxidation of fats, the idea is developed that autoxidation is caused primarily by active oxygen and secondarily by peroxides. Hence fat antioxidants can work in different ways as follows: (1) Substances which act as hydrogen acceptors and hinder the formation of active oxygen; (2) hydrogen donors, or acceptors for active

oxygen which destroy the peroxide formed or inhibit its formation; (3) catalytically active materials which destroy hydrogen peroxide. Examples of each class are: (1) *para*-benzoquinone, quinonoid dyes, aromatic nitro compounds; (2) hydroquinone, pyrocatechol, pyrogallol, guaiacol. Quinhydrone whose action falls in both these classes is more active than either quinone or hydroquinone. K. Taufel. *Fette und Seifen* 48, 745-50.

Synthetic Fatty Acids

A process for the manufacture of synthetic fatty acids is described based on the oxidation of the residue obtained during the hydrogenation of carbon monoxide. This residue of the synthetic-fuel plants is first fractionated, then oxidized to fatty acids. The product is washed to remove the catalyst, saponified, the unsaponifiable steam-distilled and returned to be oxidized again. The soap is acidified, the fatty acids are distilled and fractionated. These acids have 10-20 carbon atoms in the chain and are similar to natural fatty acids, except that the synthetic product contains acids with both even and uneven carbon atoms. The product is used for soap, and after esterification with glycerine for cooking fats and artificial butter. A. Imhausen. *Kolloid-Z.* 103, 105-8 (1943); through *Chem. Abs.*

Acid Wool Washing

It is well known that wool shows least swelling and greatest resistance to injury at its isoelectric point, pH 4.9. Weak acid solutions near the neutral point have no injurious effects and excess of detergent or higher temperatures are not serious. Excess detergent in alkaline solutions at pH 10 or greater has a marked effect. Lanolin applied either in the bath or afterwards is beneficial. Tear resistance and elasticity of woolen material washed with a lanoline-containing product were about 10 per cent higher than controls washed on the alkaline side. By controlling pH and holding it at or near the isoelectric point of wool during washing, the so-called unavoidable damage can be minimized. Heinrich Arzt. *Melliand Textilber.* 23, 81-6.

Soap from Fatty Esters

Instead of making soap from fatty acids or from fats, Colgate-Palmolive-Peet suggest in an application for a British patent that the fatty esters of lower monohydric alcohols be used. The alcohol produced on saponification is removed from the reaction mixture by distillation at sub-atmospheric pressures. The advantage is that where reaction is not carried to completion there is no rancidity problem.

A portion of the monoacid ester can be left unreacted in the product to provide a superfatting agent. Such unreacted residues provide superior, more stable, and sweeter smelling superfatting material than do natural fats and oils. By operating at low temperatures the excess fatty-acid ester can be left in the soap, even though substantially all of the liberated alcohol is volatilized.

In an example of such a process, 240 parts by weight of the methyl esters of coconut-oil fatty acids, 78 parts of the methyl esters of olive oil fatty acids, and 75 parts of the methyl esters of tallow fatty acids are heated to 100° C. and are pumped into a reaction vessel. About 170 parts of a 42° Be. solution of caustic soda at 100° C. are also pumped into the vessel. A pressure of 80 pounds per square inch is built up and the mass is well agitated. The mixture is run through the vessel in about 3-5 minutes when the temperature rises to about 140° C.

The reaction mass is then discharged into a vapor separation chamber which is under a vacuum of 27½ inches of mercury. The alcohol liberated in the reaction, together with part of the water, are flashed off and withdrawn to a condensation system.

A portion of the soap, substantially free of alcohol, and in the form of granules or pellets, is used as such. A second portion is pressed into bars and cakes. A third portion, being in a plastic condition, is fed directly into a plodder, where perfume and other materials may be added. The soap is extracted from the plodder through an orifice and is cut into cakes. *Perfumery & Essential Oil Record* 34, 350-1 (1943).

Darkening of Soap

Several soaps were analyzed fresh and after becoming dark and rancid. Rancidification caused no significant change in the amount of unsaponified fat or the amount of unsaponifiable substances. A good soap boiled with 0.001 per cent of iron oxide or copper oxide became rancid within four weeks. Soaps prepared from fatty acids containing 0.001-0.002 per cent of iron darkened considerably. *Mykola Zajcev. Seifensieder-Ztg.* 67, No. 15, 142, No. 16, 152; through *Chem. Abs.*

Need for Bleach Test

Tallows and greases marketed under OPA ceilings are supposed to be unbleached. There are, however, no known methods of determining with certainty whether or not a given stock has been bleached. A number of samples of tallows and greases were refined and bleached in the laboratory. The results indicate that there is little or no correlation between F.A.C. color and the color of the refined and bleached fat as it would be used for making soap. It is therefore recommended that a standard refining and bleaching test for tallows and greases be developed. L. B. Parsons. *Oil & Soap* 20, 256-7 (1943).

Trichloroethylene in Dry Cleaning

Dry cleaners with units for using carbon tetrachloride may use these with trichloroethylene instead. The latter has a somewhat higher boiling point (188° F. against 170° F.), so that somewhat higher steam pressures will be necessary in the distillation of the solvent. Also, deodorization will require a somewhat higher temperature.

When using trichloroethylene, the temperature of the solvent in the wheel should be as low as possible in order to avoid bleeding of certain acetate rayon dyes. The extraction of loads should be as complete as possible in order to avoid blowing off any more solvent than necessary in the deodorizing operation.

Development of acidity in the still pot should be kept to a minimum by adding about a half pound of borax to the still pot after every clean-out. *Laundry & Dry Cleaning J. of Canada* 23, No. 12, 26 (1943).

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U.S.I. CHEMICAL NEWS

February ★ A Monthly Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1944

Ethyl Carbonate Gains Stature As Raw Material

Synthesis Possibilities Overshadow Original Uses as Lacquer Solvent

Ethyl carbonate was first produced in this country by U.S.I. to provide an extremely pure lacquer solvent. Its low acidity, mild odor and high stability have made it especially desirable for such special purposes as the coating of cathodes for sensitive radio tubes. However, as the starting point for an interesting group of organic reactions, ethyl carbonate is now assuming far greater importance.

Synthesis of Phenobarbital

The Claisen condensations of ethyl carbonate in the presence of metallic sodium are of particular interest. In the manufacture of phenobarbital, for example, it is reacted with benzyl cyanide to give ethyl alpha-cyanophenylacetate, as the first step. Similarly it condenses with other cyanide derivatives to form the half nitrile of the corresponding malonic ester. Still other Claisen condensations include:

1. With esters of aliphatic acids and of aryl substituted aliphatic acids, it gives an alpha-carbethoxyl derivative, which is a derivative of malonic ester:

   (a) with ethyl acetate, it gives ethyl malonate, and also ethyl methanetricarboxylate, which is formed by the substitution of a second alpha hydrogen with the carbethoxyl group.

   (b) with ethyl phenylacetate, it gives ethyl phenylmalonate.

2. With ketones, it gives beta-keto-esters:

   (a) with acetone, it gives Ethyl Acetoacetate.

   Exceptions. In some cases, there is formed the alkyl carboxylic ester of the enol-form of the ketone instead of the beta-keto-ester. Ketones which condense rapidly with themselves in the presence of sodium ethoxide give very poor yields or no reaction at all with ethyl carbonate.

(Continued on next page)

New Pour Depressors Made With Dibutyl Phthalate

Condensation of chlorinated paraffin wax with dibutyl phthalate, using aluminum chloride as the catalyst, yields an oil-soluble product possessing valuable pour depressing properties. The reaction, according to the patent just issued to a New Jersey inventor, is carried out in two stages, followed by dilution of the reaction mixture with kerosene and hydrolysis of the catalyst with alcohol and water. The kerosene extract is distilled at 600 deg. F., and the product recovered as residue.

The pour depressor potency of wax modifiers made by this process were tested by blending in a wax-bearing oil. The following results are shown for Example No. 1.

	Pour point
Original oil	+ 30 ° F
Original oil + 1% product	+ 5 ° F
Original oil + 5% product	— 20 ° F

Indalone a Vital Ingredient in New All-Purpose Insectifuge

Insect Repellent Developed by Government Proving Effective for Wide Variety of Conditions

In the steaming jungles of New Britain, at bleak outposts on Kiska, along the runways of African air bases, our fighting forces have been unanimous in naming insects as one of their most ferocious foes. The trouble with this "air borne" enemy has been that repellents which worked well in one area failed in others. Certain insects in the Aleutians would be undaunted by chemicals which held their tropical prototypes at bay.

As a direct result of intensive research conducted by government agencies, there has now been developed an insect repellent which performs with high effectiveness in all parts of the world, against all types of insects, including mosquitoes, biting flies and chiggers. It promises to be a factor of tremendous importance to the morale and combat efficiency of all branches of the service. Although the complete composition of the product cannot be revealed at present, it can be stated that one vital ingredient is U.S.I.'s Indalone.

A Pre-War Development

Indalone was introduced by U.S.I. several years ago and quickly won acceptance both as an insectifuge and as a solvent for rotenone in insecticides. The product owes its unusual repellency against biting flies and mosquitoes to its bitter taste and to its effect on the nerve endings in the feet of the insects. It is easy to apply, long lasting.

Post-War Prospects Bright

The pre-war success of Indalone, coupled with the current development of an all-purpose repellent, point to post-war markets of

(Continued on next page)

Shrinkproofs Wool with Alcoholic Solutions

Reductions ranging up to 65 per cent in the felting shrinkage of wool socks have been made without significant loss of bursting strength, according to a report on recent investigations made under the auspices of the Council for Scientific and Industrial Research of Australia. The method involves treating loose socks with 2.5 per cent alcoholic caustic potash for 20 minutes, centrifuging, and steeping in alcoholic sulfuric acid. The socks are again centrifuged and then rinsed, successively, with water, an aqueous solution of sodium bicarbonate, and a cationic softening agent which serves to improve the handle. For successful results, temperatures must be closely controlled, and water content of the alcoholic solutions must be kept between one and five per cent.

Always a matter of vital concern to fabricators of wool, effective shrinkproofing is doubly important today, when the comfort of our armed forces depends so heavily on wool clothing. Thus the new process promises very tangible benefits for the immediate, as well as the postwar future.

Official Photo U.S. Marine Corps

U.S. Forces on a South Pacific island after bitter, but successful invasion. In the future our boys will have one less enemy to fight — thanks to the Government's new all-purpose insect repellent.

ADVERTISEMENT—*This entire page is a paid advertisement.*

February ★ **U.S.I. CHEMICAL NEWS** ★ 1944

Photographic Processing Accelerated by Alcohols

A recently-awarded patent states that substantial increases in developing and fixing speeds for certain films can be obtained by the use of ethanol or several other alcohols in the processing solutions. Ketones such as acetone are also stated to be useful.

Photographic layers of cellulose ethers containing from 39 to 53 per cent ethoxide process very slowly in the usual developing and fixing solutions. As a result of its pronounced swelling action, alcohol markedly increases the rate of penetration of these solutions, thus cutting the time needed for completion of the reactions.

As an example of a developing solution the patent gives the following make-up:

Developing Solution

p-Methyl amino phenol sulfate	grams– 3.1
Sodium sulfite	grams–45.0
Hydroquinone	grams–12.0
Sodium carbonate	grams–67.5
Potassium bromide	grams– 1.9
Water to make	liters – 5
Ethyl alcohol	grams–2762

Cement Rock Flotation Improved by Alcohol

An improvement in the recovery of cement rock values by the use of froth flotation and an organic promoter is described in a recent patent. The promoter is selected from the group consisting of higher fatty acids and mixtures or soaps of such acids. It is used diluted with at least one aliphatic alcohol, the alcoholic content being from 9% to 20%.

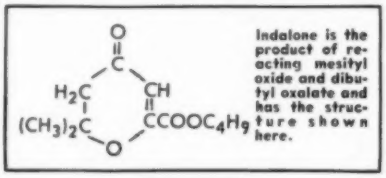
Process of Refining Mineral White Oils

A patent just issued to a New Jersey inventor describes the following process: A petroleum oil is first treated with sulfuric acid of above 93% concentration to remove substantially all the unsaturated and color-forming bodies. Sludge is then separated and the oil neutralized with an alkaline solution. To remove the sulfonate soaps formed, the oil is treated with about 50% aqueous alcohol. The oil is now treated with from 0.5% to 1.0% of an anhydrous metallic chloride, sludge is separated, and a final treatment with 0.01% to 1% anhydrous caustic alkali is applied.

All-Purpose Insectifuge

(Continued from preceding page)

striking potentiality. When it is considered that Indalone can be combined with light-screening chemicals such as U.S.I.'s BK-5 these potentialities appear all the greater.



Indalone is the product of reacting mesityl oxide and dibutyl oxalate and has the structure shown here.

Ethyl Carbonate

(Continued from preceding page)

3. With *p*-chloro-biphenyl, it gives tri-biphenyl carbinol.

Miscellaneous Reactions

1. Sodium or sodium ethoxide forms sodium ethyl carbonate.
2. Ammonia gives urethan and urea.
3. Primary and secondary amines give the corresponding substituted ureas.
4. Hydrazine gives ethyl carbazate (ethyl hydrazinecarboxylate) and carbohydrazide (sym. diaminourea).
5. Biguanide in boiling ethanol gives ammeline (2-hydroxy-4, 6-diamino-1, 3, 5-triazine).
6. The Grignard reagent, RMgX, gives the ester of the next higher acid, $RCOOC_2H_5$.

Method for Purifying Organic Phosphates

A German patent now vested in the Alien Property Custodian covers a process for eliminating asphaltic impurities from phosphoric esters used in the extraction of phenols from aqueous liquors. The esters are selected from the group consisting of triaryl phosphates and trialkyl phosphates.

The process comprises treating the phosphates simultaneously with two agents, one a low-molecular aliphatic alcohol, the other consisting of low-molecular saturated aliphatic hydrocarbons. The latter agent, together with the materials dissolved therein, is separated and the acid esters recovered by distillation.

TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

A simple, new viscosimeter, designed to help standardize paint and other finish consistencies, permits inexperienced workers to take readings right on the job. Maker reports measurements can be made in 30 seconds. **(No. 780)**

U S I

Synthetic sponge rubber, which can be molded into slabs, cord and other shapes, is offered for sale in soft, medium and firm consistencies. **(No. 781)**

U S I

Cleaning metal surfaces is said to be faster, more thorough and conducive to better bonding of electro-deposits and organic finishes with a new emulsion-type cleaner. The product is designed to remove oil, grease and solid dirt without attacking even the more active metals such as aluminum and brass. **(No. 782)**

U S I

Sealing pipe joints against pressures up to 6000 pounds and temperatures up to 600 deg. F. is said to be facilitated with a new, insoluble, plastic lead seal recommended for oil, water, and steam lines. **(No. 783)**

U S I

Ursolic acid, according to a recent report, is being refined from cranberries on a pilot plant scale. A white, flaky, resinous product, this acid is said to be soluble in alcohol and benzene, to possess therapeutic qualities, and to be useful as an emulsifying agent. **(No. 784)**

U S I

A new synthetic detergent, available as a dry powder in various strengths, is said to have a wide range of uses in cleaners, textile specialties, bubble baths and hard water soaps. **(No. 785)**

U S I

Corrosion proofing of metal is accomplished by a new line of inorganic coatings which can be applied by spray or dip. The maker claims high resistance to acids, solvents, abrasion, and heat. Supplied in 5 basic colors, or shades to specifications. **(No. 786)**

U S I

Stepless pump volume control is being offered on a line of pumps for high-pressure and other chemical plant services. The control utilizes electronic tubes to convert a-c power to d-c and provides finger-touch regulation of pump motor speed from 10% to maximum. The control can also be actuated by flow meters, temperature controls or other instruments. **(No. 787)**

U S I

A molasses replacement for use as a binder in foundry work, briquetting, thickening agents, and similar applications is available in quantity without allocation limitation. Product is reported to be useful also as an extender in hog and dairy feeds. **(No. 788)**

U S I

Hand protection for workers exposed to solvents, cutting oils, and many other materials is said to be afforded by a new liquid preparation which dries to a visible, durable, elastic coating. The maker claims the coating will last a full shift, and will wash off with soap and water. **(No. 789)**

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Diethyl Oxalate

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Diethyl Phthalate

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Ethyl Formate

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Industrial Dermatitis

OCCUPATIONAL dermatitis has never been so serious as at present. New industries, particularly those concerned with the war effort, have contributed many causative agents. L. Schwartz of the U. S. Public Health Service found plants in which 100 or more cases of industrial dermatitis existed but not one instance of other occupational disease.

The most frequent causative agents fall into a number of categories as follows: Petroleum oils and greases, alkalis—including cement and concrete—solvents, chromic acid and chromic salts, metals and metal plating, dyes, rubber and its compounds, paints and varnishes, synthetic resins, and cutting oils and related compounds.

Cleanliness is emphasized as one of the most important protective measures. Although soap itself has been accused of being a causative factor in industrial dermatoses, this is probably true only where individual sensitivity to soap exists. In the majority of cases where soap is blamed, the dermatitis can be traced to the presence of excessive alkali, harsh abrasives, or chemicals, in the soap. The following superfatted soap has been recommended as an industrial skin cleanser for general purposes:

	Parts
Neutral toilet soap	30
Bentonite	30
Synthetic detergent (Santomerse, Nacconol, Igepon or Duponol)	10
Hydrous wool fat	5
Perfume	1

For soap- and alkali-sensitive persons the following soap-free formula is suggested:

	Parts
Synthetic detergent	20
Hydrous wool fat	3
Bentonite	76
Perfume	1

Skin-protective creams continue to gain in favor. A simple vanishing cream, when rubbed into the skin, fills the pores with soap and facilitates dirt removal on washing:

	Parts
Stearic acid	20
Soda ash	2
Glycerine	6
Water	78

Ointments containing inert powders to increase protection against industrial irritants and against the mechanical irritation of abrasives, have the formulas:

	Parts
Magnesium carbonate	5
Talc	5
Soap	30
Hydrous wool fat	30
Castor oil	28
Duponol	2
Perfume to suit	
Zinc oxide	5
Talc	5
Iron oxide	1
Irish moss	2
Gum benzoin	2
Water	10
Alcohol	15
Vanishing cream	60

Use of an emollient after thorough cleansing of the hands is often very helpful. M. A. Lesser. *Drug & Cosmetic Ind.* 53, 630-1, 701-5 (1943).

◆

Surface Tension Measurement

The application of the vibrating-jet technique to surface tension measurement has been restricted by practical difficulties, as well as by the complex mathematical treatment required.

A practical technique and simple mathematical treatment are now described which enable the method to be more readily applied to the measurement of surface tension and to the study of adsorption at freshly formed surfaces. The method is applicable to liquids of widely different density, surface tension, and chemical nature. The constants as defined are independent of temperature. C. C. Addison. *J. Chem. Soc.* 1943, 535-41.

◆

Sodium Sulfate Sour Unsafe

Recently in a western laundry a test bundle showed a loss in tensile strength of 33 per cent on 20 washes. A new type of sour was being used which upon analysis was found to consist mainly of sodium acid sulfate. This is a compound which produces considerable amounts of free sulfuric acid when dissolved in water, and therefore its use as a sour is not much less dangerous than a dilute solution of straight sulfuric acid. The high tensile-strength loss shown by the test bundle was the result of the corrosive action of the traces of sulfuric acid remaining in the load after souring. *Information Bull. Canadian Research Institute of Launderers and Cleaners*, Dec. 1943.

◆

Laundry Problems

One problem that the laundryman is encountering currently is the failure of sulfur prints to stand chlorine. In the past, the major portion of prints on the market would stand chlorine bleach. Sulfur prints, a war-time necessity, cannot stand chlorine. This should be pointed out to the laundryman to prevent such fabrics from being subjected to a treatment they cannot withstand.

A new method of finishing has proved to be 300 per cent faster for pressing army shirts; it also eliminates the troubles which occur where hot presses produce shine on a dampened article. The article to be finished is placed on a form covered with an inflatable porous fabric, in the manner used for dress forms. High steam pressure is admitted to the inside of the bag, which inflates and thus presses the article through the action of steam and pressure. W. E. Coughlin. *Textile Colorist* 65, 523-4, 556 (1943).

◆

Natural Antioxidants

Molecular distillation at 140°, 160°, and 180° C. of refined peanut oil, both hydrogenated and unhydrogenated, yielded antioxidant concentrates, presumably tocopherols, from each oil. Evidence was found of the presence of distillable antioxidants other than tocopherols. Hydrogenation of the oil had no appreciable effect on the activity of its distillable antioxidants.

With unhydrogenated oil there was an optimum level of antioxidant concentration above which the addition of these substances had no stabilizing action. Hydrogenated oil showed an increase in stability with the addition of antioxidants up to the highest level to which the concentration of the latter was carried, approximately 0.15 per cent. A. E. Bailey, G. D. Oliver, W. S. Singleton, and G. S. Fisher. *Oil & Soap* 20, 251-5 (1943).

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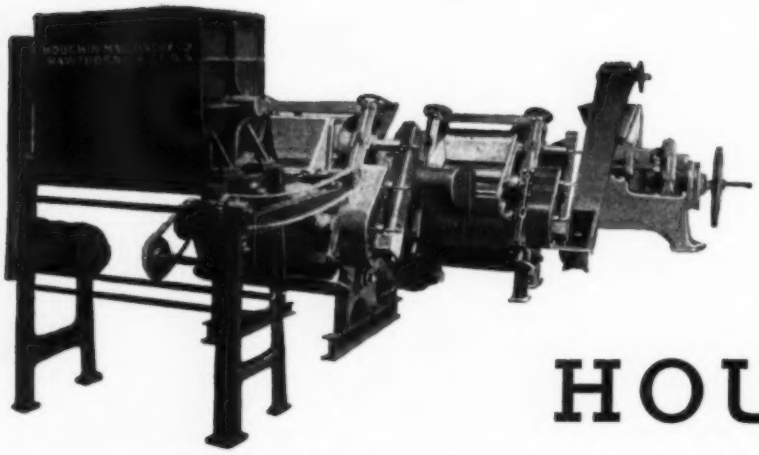

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Aldehydes in Soap Perfuming

The instability of many aldehydes under the influence of light, air and alkali is responsible for the rather frequent failures encountered in their use in soap perfuming. Citral, for instance, is relatively instable, making something of a problem of the successful composition of an eau de cologne odor. When using lemon oil in soap perfuming the odor is often found to suffer in the presence of terpinyl acetate, geranyl acetate or linalyl acetate.

Hydroxycitronellal oxidizes quite readily in the presence of certain materials such as oils high in pinene, hence its use in connection with such products must be avoided. Vanillin discolors quickly under the influence of light, its odor also being affected. This suggests the substitution of ethyl vanillin of which considerably less need be used because of its greater effectiveness. Phenols such as eugenol and isoeugenol, and oils of high phenol content such as cinnamon, cloves, thyme, origanum, etc., also show this same tendency to discolor soaps in which they are used.

Heliotropin is not recommended for use in combination with methyl anthranilate or indol, or with oils containing such materials. Such combinations eventually produce a tarry note. Heating heliotropin above its melting point (35 to 36° C.) affects the quality of the product as well as the color. It is thus advisable to use it in solutions of diethyl phthalate or benzyl benzoate. Addition of approximately half of one per cent of gum arabic is said to be a simple and effective preventive against discoloration.

Anisic aldehyde oxides quickly in contact with air, forming anisic acid which is practically odorless. Oxidation can be retarded by addition of small quantities of terpene alcohols such as citronellol, geraniol, or phenyl ethyl alcohol. Schimmel & Co. *Briefs.*

◆

Treatment for Cottonseed

Treatment of moist cottonseed with ammonia prior to storage has been shown to reduce self-heating of the seed and the rate of formation of free fatty acids during storage. The color of oils obtained by solvent extraction of ammonia-treated cottonseed is much lighter than that of oils obtained from untreated cottonseed. A. M. Altschul, M. L. Karon, Lillian Kyame, and Maizie Caravella. *Oil & Soap* 20, 258-62 (1943).

◆

Antioxidant for Fats

An antioxidant for fats and oils covered by U. S. Patent 2,333,655 granted to H. A. Mattill and C. Golumbic and assigned to Lever Bros. Co., is comprised of a small amount of ascorbic acid and a small amount of one of several compounds related to Vitamin E., e.g. tocopherol type compound selected from the group consisting of hydroxychromans, tocopherols, alkyltocols, hydroxycoumarans, hydroxycoumarones, hydroxyisocoumarones and the chroman-5.6-quinones and their precursors. It is claimed that the combination of ascorbic acid and vitamin E-related materials produces a synergistic action of inhibiting oxidation and the development of rancidity in the oleaginous matter.

Another patent (Pat. No. 2,333,657) granted the same inventors, specifies the use of a small amount of caffeic acid for the same purpose.

◆

Stabilized Trichloroethylene

Stabilization against deterioration in repeated use as a solvent of chlorinated hydrocarbons such as trichloroethylene and perchloroethylene, is effected by the addition of about 0.001-0.01 per cent of the monomethyl or monobenzyl ether of hydroquinone or similar compound. Arthur L. Pitman, to Westvaco Chlorine Products Corp. U. S. Patent No. 2,319,261.

◆

Proposed New Hardness Unit

A proposed Soviet unit of hardness of water to replace the German degree of hardness, is a content of 1 mg. of calcium per liter of water. The new unit simplifies the designation of hardness for soft water, and owing to the more simple conversion factor it facilitates the determination of the quality of water by titration. V. N. Zagrayzkin. *Khim. Referat. Zhur.* 4, No. 6, 100; through *Chem. Abs.*

Soap as Packaging Material

The ability of soap to form stable mixtures of ordinarily immiscible substances accounts for its increasing employment in making paper sizings, inexpensive wax finishes on paper products, waterproof coatings, and other special effects. In the formulation of paper sizings, soap is said to have a lubricating effect on the fibres, to improve opacity and to disguise the odor of certain paper-treating materials. Moreover, the addition of soap serves to impart an improved finish to paper on calendering. Thus, soap is used as an emulsifying agent and to impart other desirable qualities to paper sizes in which gelatin is used or in which alum is an important constituent. Soap is also finding ever-increasing use in conjunction with processes for impregnating paper fibers with starch. In the production of sizes where such waxes as montan japan or carnauba wax are employed, soap is often used as the emulsifying agent. In one patented procedure, a corn oil soap is advocated not only as the emulsifying agent but also to prevent foaming during the compounding of the starch. Thus 75 parts of wax are used with 15 parts of modified starch and 10 parts of soap to make paper with a high finish hard surface. It is claimed that such sizing is equally applicable to cellulosic and asbestos paper stock; a highly water resistant effect being obtained in the latter instance. Georgia Leffingwell. "Soap as a Packaging Raw Material." *Fibre Containers*, December, 1943.

◆

Safflower Seed Oil

Safflower seeds yield 30.5 per cent of oil. The fatty acids in the oil are: 1.5 per cent of myristic with lauric and other lower acids, 3 of palmitic, 1 stearic, 0.5 arachidic with a trace of lignoceric, 33 oleic, 61 linoleic, and 0.1 per cent linolenic. N. L. Vidyartihi. *J. Indian Chem. Soc.* 20, 45-50 (1943).

◆

Coconut Oil Replacement

Coconut oil and palm-kernel oil are being replaced to some extent by sulfonated oils. The soaps of sulfonated oils serve as extenders for soap. F. Wittka. *Fette und Seifen* 49, 115-17.

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PRODUCTS AND PROCESSES

Synthetic Shampoo

A detergent composition suitable for use as a shampoo consists of sodium lauryl sulfoacetate. For each part by weight of this, 1.5-5 parts by weight of a stabilizing agent are used, such as the sodium salt of an alkyl ester of an acid selected from the groups consisting of sulfuric acid and sulfo aliphatic monocarboxylic acids containing 2-4 carbon atoms. The alkyl radical contains 6-8 carbon atoms. G. C. Toone and L. H. Flett, to Allied Chem. & Dye Corp. Canadian Patent No. 416,852.

Treating Soap Nigre

A process for separating insoluble impurities from a soap nigre containing free alkali involves adding a source of acid, such as coconut oil, to the nigre until the quantity of free alkali present is substantially reduced. Insoluble impurities are removed from the acid-treated nigre by centrifuging. The reaction between the acid and nigre is so carried out as to avoid splitting of the soap of the nigre. L. Sender and J. H. Wilson, to The Sharples Corp. U. S. Patent No. 2,321,947.

Polish for Glass

A polishing mixture suitable for use on glass or metals is prepared by boiling about 4 ounces of comminuted castile soap in about 1 cup of water, pouring the solution into 6.25 pounds of whiting, together with 1.5 ounces of aqueous ammonia, 1 ounce of olive oil and 0.5 ounce of oil of sassafras. The mass is mixed and kneaded until it has a relatively stiff moldable consistency. Lois I. Smith. U. S. Patent No. 2,322,066.

Salt Removal from Sea Water

A chemical de-salter for converting sea water into drinkable water is being produced and packed in 3½ pound kits by Permutit Company of New York. The kit consists of a plastic bag for holding the water, and 14 chemical bricks for purifying the water. One brick disintegrated in sea water will produce a pint of drinkable water in about 20 minutes.

Aluminum Cleaner

A liquid for cleansing aluminum contains 6-25 parts of sodium alum, 0.2-5 parts of a detergent, and about 100 parts of water. Camille Dreyfus, Canadian Patent No. 416,965.

Secondary Alcohol Sulfate

Secondary alcohol sulfates are prepared containing at least 11 carbon atoms, such as sodium penta-decyl-4, —6 or —8 sulfate, by converting straight chain aliphatic acids of suitable length into ketones, hydrogenating to form secondary alcohols, and sulfonating, then neutralizing. The products are suitable for use as emulsifying agents and detergents. E. E. Dreger and John Ross, to Colgate-Palmolive-Peet Co. U. S. Patent No. 2,321,020.

Mildewproofing Agent

Mildewproofing and water repellency are combined in an agent called Cerol TGI, announced by the Sandoz Chemical Works of New York. The product is an emulsion containing dihydroxy-dichloro-diphenyl methane. It possesses high stability both in its concentrated form and when diluted to working strength. An 8 per cent solution is recommended, applied in the usual manner. Fabrics treated with this compound are said to be nontoxic; garments so treated may be worn in contact with the skin.

Mosquito Repellents

Under the stimulus of the need of the armed forces for more effective insect repellents, a number of new products have been developed which are effective over a much longer period of time than products formerly in use. One lotion based on a new repellent has been found to be effective against mosquitoes for at least 400 minutes. Ideally, a repellent should prevent annoyance by all types of pests for long periods of time under all conditions. A second consideration in the selection of a repellent material is harmlessness to the user. There must be no resultant harmful or irritating effects on the surface of the skin and no harmful internal effects as a result of absorption. Other factors affecting selection of a repellent material include such factors as odor, availability on a large scale, stability, and harmlessness in contact with various surfaces. Along with the development of better repellents have come improved methods for the testing and evaluation of the necessary qualities. Philip Granett, W. Rudolfs and G. C. Furness. *Chemical Industries*, December, 1943.

Antiseptic Paints

The biologically active principles in antiseptic and germicidal paints may be centered in the pigment, the binding medium, the thinners, or in special ingredients incorporated in the latter. Of all ingredients tried only chlorinated phenols and oxy-quinoline sulfate conferred bactericidal properties on ordinary paints. Requirements for really useful paints of this type call for higher performance than might be expected from use of a chlorinated oil vehicle alone. Study of other film-forming ingredients whose drying is not so retarded might be profitable for increasing the persistency of biological action. The possibilities of resinous rather than liquid or solid germicides would seem to merit investigation. H. D. Hewitt. *Paint Manufacture*, London, December, 1943.

Tell of Low Cost Synthetic Menthol

A new process for producing synthetic menthol at lower cost than that of the natural product, and which thereby may make the U. S. independent of Japan for its supply in the post-war period, was disclosed by Dr. C. E. Merrill, assistant vice-president of United Drug Co., Boston, in an address before the scientific session of the Proprietary Association of America, meeting at the Hotel Biltmore, New York, Dec. 8.

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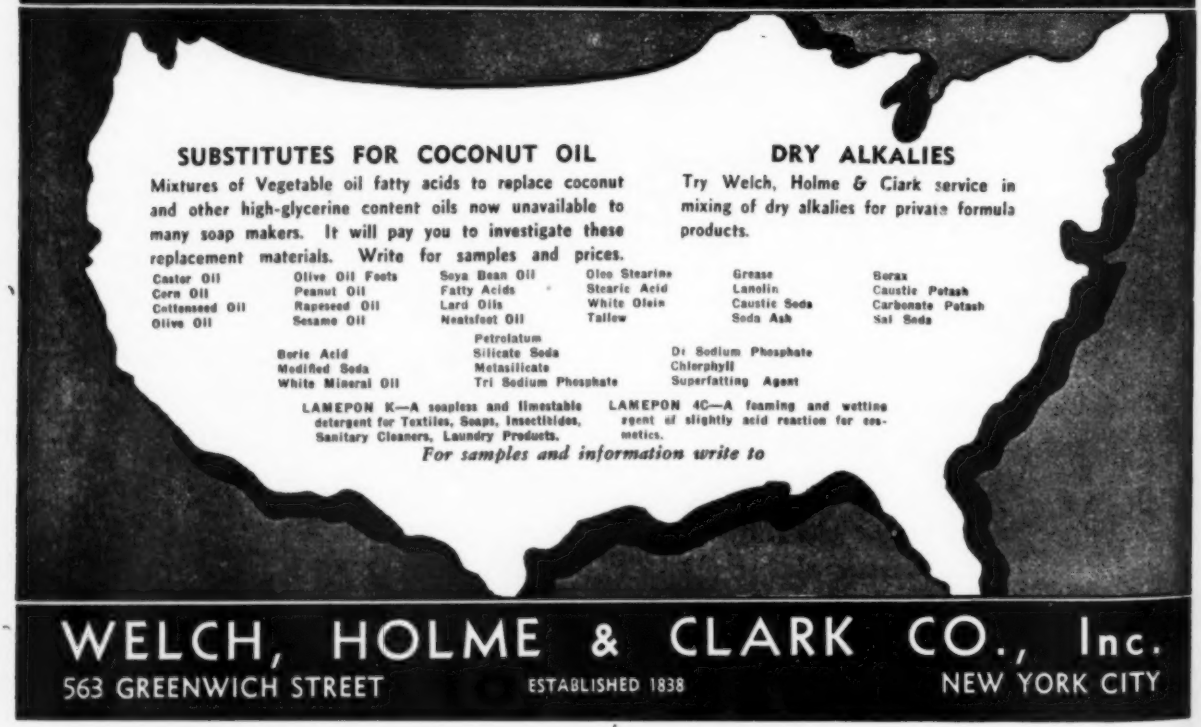

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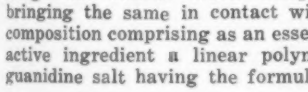
Registered Attorneys
PATENT AND TRADE MARK CAUSES

402 Bowen Building,
Washington, D. C.

Complete copies of any patents or trade-mark registration reported below may be obtained by sending 25c for each copy desired to Lancaster, Allwine & Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 2,336,166, Nonfoaming Shampoo, patented December 7, 1943 by Gifford D. Davis, South Orange, N. J., assignor to National Oil Products Company, Harrison, N. J. A non-foaming shampoo comprising a sulfated mixture of a paraffin oil and rice bran oil.

No. 2,336,605, Pesticide, patented December 14, 1943 by Maurice L. Ernsberger and John F. Lontz, Wilmington, Del., assignors to E. I. du Pont de Nemours & Co., Wilmington, Del. Process for controlling bacteria, fungi and insects which comprises bringing the same in contact with a composition comprising as an essential active ingredient a linear polymeric guanidine salt having the formula



wherein D and E are hydrocarbon radicals of at least four chain carbons, Hal is a halogenide anion and z is an integer greater than one.

No. 2,336,893, Manufacture of Soap, patented December 14, 1943 by Ashton T. Scott, Bryn Mawr, Pa., assignor to The Sharples Corporation, Philadelphia. In the manufacture of soap, the process comprising mixing a saponifying reagent with a fluid fat, subjecting the resulting mixture to saponifying reaction conditions, subjecting the resulting mixture of soap and spent saponifying reagent to centrifugation to effect separation of spent reagent from the soap, discharging the separated soap into a centrifugal cover, and mixing further saponifying reagent with soap discharged into the centrifugal cover and assisting the discharge of soap from the cover by injecting the further saponifying reagent into the cover.

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Emulsion Stability

A rapid quantitative method for determining the mechanical stability of emulsions involves measuring the rate of separation of the internal phase under a constant centrifugal force. The reciprocal of the initial rate of separation at a constant centrifuge speed is taken as a quantitative index of the mechanical stability of the emulsion. The method has been applied to both water-in-oil and oil-in-water emulsions stabilized by lecithin, soaps and vegetable gums. It gives results in a few hours apparently comparable to those obtained by more tedious methods involving other factors and requiring measurements over many months.

The age of emulsions has some effect on mechanical stability. When soap is the emulsifying agent, the aging effect is probably due at least partly to absorption of carbon dioxide and subsequent hydrolysis of the soap. The acid soaps formed are evidently much less effective stabilizing agents. Such aging effects were not obtained with emulsifiers which are stable when exposed to air, nor would it be expected that they would be obtained with soap emulsions kept in closed vessels free from carbon dioxide. Reynold C. Merrill, Jr. *Ind. Eng. Chem.*, Anal. Ed. 15, 7436 (1943).

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Musk from Muskrats

To America now belongs the distinction of having the world's largest potential musk supply. The perfume industry of this country, as of others, has for many years used animal fixatives, of which musk from the muskdeer of Tibet and China, and civet from Abyssinia's civet cat, have been the most important. Recently workers at Yale and at Louisiana State Univerity, announced the efficient production of musk from the American muskrat. Study of the chemical character of the odoriferous components of this musk has enabled the investigators to increase the value of the naturally occurring musk substances almost 50 times.

When the musk-like bodies had been concentrated and isolated from the musk glands, it was found that about 98 per cent of them consisted of so-called musk alcohols and only 2 per cent of musk ketones. Only the latter possess the desired odor and fixative qualities, but it was found possible to oxidize in excellent yield all of the musk alcohols to musk ketones, thus utilizing the potentialities of the natural material to the full. *Givaudanian*, December, 1943.

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Determining Acid Number

Due to the scarcity of benzene, the benzene:alcohol mixture used as solvent in determining the acid number of oils has been replaced by a mixture of two parts of "Solvesso No. 1" to 1 part of denatured anhydrous ethyl alcohol. The petroleum product named is readily available. With the mixed solvent, no interference could be detected with the titration or the end point. P. L. Gordon, J. A. Gildon and F. L. Rubin. *Ind. Eng. Chem.*, Anal. Ed. 15, 765 (1943).

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Decolorizing Oils

Animal or vegetable oils which contain a positively charged colloidal suspension of coloring matter, are treated with a metallic compound soluble in the oil. This will react with an alkaline agent to form a negatively charged colloidal suspension. When such an alkaline agent is mixed with the solution, the positively charged particles of coloring matter are neutralized. They are then adsorbed by the suspension formed from the metallic compound. Ralph H. Fash, to Anderson, Clayton & Co. Canadian Patent No. 417,004.

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Oil Bleaching

Oils, fats and waxes are refined by diffusing chlorine dioxide into the material to be bleached, and permitting the same to stand and bleach. H. J. Kauffmann, to Buffalo Electro-Chemical Co. Canadian Patent No. 416,867.

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Here's a wood resin that's not only plentiful but low in cost, CLEAN and UNIFORM as well. It has to be, because of the way it's made . . . by modern steam distillation methods . . . under scientific laboratory control. All foreign matter is left behind. All shipments are identical, with never a need of change in your formulae.

NUBRO RESIN has a rosin color grade of "B", a melting point of 53°C (capillary tube) and 76°C (ball and ring), with an acid number of 107.

It is used as an emulsifier in disinfectants. Nubro soap will not salt out of solution and form scum in the presence of large excess of alkali. It is soluble in alcohol, ketones, aromatic hydrocarbons, toluol xylol, etc., and terpene solvents. It will saponify readily with caustic soda, soda ash, caustic potash and potash.

Available in carload quantities for immediate shipment.

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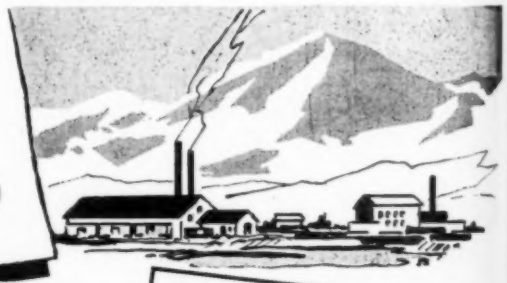

Not until Valencia — the standard of American Pumice — was discovered at Grants, New Mexico, was it thought that a domestic pumice could match the quality of imported Italian Pumice. This inexhaustible deposit at Grants is true pumice stone and not a volcanic ash. It is physically and chemically equal in every respect to the now unobtainable Italian Pumice. • The Valencia plant's output of grades for every need is rigidly under control for particle size, purity, weight and color.

Check this table comparing Valencia with the highest grade of imported Italian Pumice. See for yourself that Valencia is truly the standard of American Pumice.

	American Pulverized Per Cent	Italian Select Per Cent
Silica	72.90	73.24
Alumina	11.28	10.61
Iron Oxide	.86	1.57
Titanium Oxide	.06	.10
Calcium Oxide	.80	1.10
Magnesium Oxide	.36	.40
Soda	3.64	3.03
Potash	4.38	5.58
Sulphuric Anhydride	.03	.05
Loss on ignition	5.20	4.04

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EQUIPMENT AND BULLETINS

IF YOU want additional information on any of the items described below or if you want any of the bulletins, catalogs, etc., write to the MacNair-Dorland Co., Inc., 254 West 31st St., New York 1, mentioning the number of the item.

986—Booklet on Fatty Acids

"Emeryfacts", a 30-page loose-leaf booklet on fatty acids and their derivatives has just been published by Emery Industries, Inc., Cincinnati. The booklet is a compilation of data on the derivation and chemical nature of fatty acids, their compounds, and several tables illustrating many of their commercial applications. In addition, the booklet contains tabulations of specifications and characteristics of Emery fatty acid products. The threefold purpose of the booklet is outlined in the introduction: (1) To describe the basic chemistry surrounding the products made and sold by Emery; (2) to be a brief reference guide to chemists who use fatty acid products and their derivatives; (3) to outline specifications, shipping data and commercial descriptions of the principal Emery products in the fatty acid field. "Emeryfacts" is made up in loose-leaf form, and additional sections covering new and useful ideas will be available from time to time as supplements. The booklet is available free on request by writing Emery Industries, Inc., 4302 Carew Tower, Cincinnati 2, giving company name and position.

987—Handbook on pH Control

A completely revised 83-page combination handbook and catalog covering control of pH, chlorine, phosphates in boiler water and in water analysis, has just been issued by W.A. Taylor & Co., 7300 York Road, Baltimore 4. Fifty pages are devoted to: (1) a simple, nontechnical explanation of the meaning of pH control and the methods for making colorimetric determinations; (2) precautions to be observed; (3) discussion of the application of pH and chlorine control to 31 different fields; (4) a technical discussion of the meaning of pH control, both colorimetric and electrometric. The remaining 33 pages contain descriptions of Taylor Slide Comparators for general pH and chlorine control, determination of phosphates in boiler water and for general water analysis. Copies are free on request.

988—Solvent-proof Clothing

Flexible transparent garments, made of a vinyl resin known as "compar", a limestone-coal-and-air derivative which is impervious to sulfur-base cutting oils, kerosene, cleaning and degreasing and other organic solvents are being made by Resistoflex Corp., Belleville, N. J., as dermatoses preventives. Clothing in the form of hoods, aprons, gloves, smocks and sleeve guards are available and even shoes can be treated with a solution of the resin to afford protection against skin irritating compounds.

989—Fritzsche Bros. Price List

Fritzsche Bros., Inc., New York, are now distributing their January, 1944, price list of company's line of essential oils and aromatic chemicals. The new 8½x11¼ in. booklet contains 12 pages, giving the company's own prices, wherever possible, and next to them the "ceiling price."

990—Reilly Chemicals

Reilly Tar & Chemical Co., Indianapolis, has just issued the second edition of its handbook describing the complete line of Reilly coal tar chemicals. Included in this new edition are data on several new compounds that have not previously been offered commercially. Among these new products are isoquinoline, quinaldine, 2-vinylpyridine and 1, 2, 4-xylenol.

New Canadian Oil Crusher

Victory Mills, Ltd., Toronto, newly formed company, is now setting up a plant for the extraction and processing of oils from soybean, flaxseed, linseed and sunflower seed.

TGA Scientific Section Meets

A meeting of the Scientific Section of the Toilet Goods Association was held at the Hotel Waldorf-Astoria, New York, January 26, presided over by H. D. Goulden, chairman of the section. Among the papers presented was one by Harvey A. Seil, of Seil, Putt & Rusby, New York, on "Estimation of the Flavoring Materials in Dentifrices." The procedure for separating the volatile oils from the dentifrices was given, as well as methods for the determination of methyl salicylate and phenols, carvone aldehydes, menthol and alcohols, anise, camphor and cineol.

Speaking on "Cosmetics and Dermatitis," Louis Schwartz of the U. S. Public Health Service declared that new cosmetic products, before being placed on the market, should be thoroughly tested to avoid dermatitis complaints. Another paper "The Abrasiveness of Dentifrices" was read by Maurice L. Tainter of Winthrop Chemical Co., New York.

Sonneborn's Post-War Plans

A questionnaire to determine post-war job preferences of employees in the armed services will be released soon by L. Sonneborn Sons, Inc., oil refiners, New York, it was announced Jan. 26. The questionnaire will seek information from the 150 Sonneborn employees in the service as to any specialized military training which may equip them for work of a different nature from that performed for the company before entering the service. The individual's specific preference for future work and his own opinion of the type of job he now feels he can do best will also be given full consideration. In the announcement, the Sonneborn employees are also urged to invite interested fellow service men and women to send in their applications now for possible peace time employment at the company's headquarters in Petrolia and Franklin, Pa., its plant and laboratories in Nutley, N. J., or any of its branch offices throughout the country.

A LEHMANN SOAP PLODDER designed for post-war era of higher efficiency

The LEHMANN Repair and Maintenance Staff always is available to keep your LEHMANN machines at their highest productivity.

WARTIME *efficiency in* PEACETIME *production...*

WILL post-war production be conducted on a higher plane of efficiency as a result of wartime experiences? We believe so. Also we believe that modern, proficient equipment will be of greater importance than ever in the economic life of the nation.

Thus the high production, sturdiness, ease of operation and reliability of LEHMANN soap plodders will take on new value, for they give that extra service which marks the difference between ordinary machines and those made according to LEHMANN engineering and manufacturing standards.

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The Standard for Quality in Machinery

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Announcement

TO CONFORM WITH THE PRESENT NATURE OF OUR BUSINESS, THE NAME OF WOBURN DEGREASING COMPANY OF N. J. HAS BEEN CHANGED TO

WOBURN CHEMICAL CORP. (N. J.)

THIS CHANGE OF NAME FOLLOWS THIRTY YEARS OF OPERATIONS, DURING THE LAST FIFTEEN YEARS OF WHICH THE EMPHASIS OF OUR WORK HAS SHIFTED LARGELY TO THE HEAVY PRODUCTION OF SPECIFICATION FATTY ACIDS, SYNTHETIC DRYING OILS AND AGRICULTURAL INSECTICIDES.

OUR ORIGINAL OPERATIONS WERE BEGUN IN 1907 IN WOBURN, MASS. (WOBURN DEGREASING COMPANY), AND IN 1913 AT HARRISON, N. J., WITH THE DEGREASING OF LEATHER, A STEP NECESSARY TO THE PRODUCTION OF PATENT AND OTHER SPECIALTY LEATHERS. WOBURN HAS HANDLED 95% OF AMERICAN PRODUCTION IN THE DEGREASING OF LEATHER SINCE THAT TIME. THE OPERATIONS WHICH WERE CARRIED ON BY THIS COMPANY FOR LEATHER AND WOOL HAVE NOW BEEN TRANSFERRED TO THE WOBURN, MASS. PLANT OF OUR NEW ENGLAND AFFILIATE—WOBURN DEGREASING COMPANY.

HEAVY PRODUCTION OF ORGANIC CHEMICALS IS NOW CENTERED IN FACTORIES AT HARRISON, N. J. AND TORONTO, CANADA. PRODUCTION OF INSECTICIDES AND FUNGICIDES REMAINS AT ELKTON, MD., AND MOORE HAVEN, FLA. THE BULK PLANT FOR TECHNICAL SOLVENTS CONTINUES OPERATIONS AT NORTH WOBURN, MASS.

WOBURN CHEMICAL CORP. (N. J.)

A. G. H. Reimold

PRESIDENT

A. G. H. REIMOLD

Zinc Phosphide for Field Mice

Purdue University's agricultural experiment station at Lafayette, Ind., is recommending the use of zinc phosphide as a substitute for hard to get strychnine as a poison bait for field mice. The new bait proved effective against both pine and meadow mice and in addition is less expensive than strychnine, it was found.

In preparing the bait, three quarts of two-inch apples are sliced into eighths and mixed with one level teaspoon of the zinc phosphide, so that the poison evenly coats the outer surface of each slice. Pieces are placed at eight to ten foot intervals along runways, each being covered lightly with straw. G. C. Oderkirk of the U. S. Interior Dept.'s Fish and Wild Life Service, division of predatory animal and game control, was leader of the station's investigators on the project.

Another subject reported in the Indiana agricultural experiment station's recently released annual report, had to do with substitutes for sodium fluoride and pyrethrum, commonly used for cockroach control.

In the tests, says the report, "roaches were allowed to run through insecticide mixtures and at the end of seven days the following control was obtained: Sodium fluoride, 98 per cent dead; 98 per cent sodium fluosilicate, 95 per cent dead; 35 per cent sodium fluosilicate, 50 per cent dead; barium fluosilicate, 85 per cent dead; sodium fluoaluminate, none dead; borax, 40 per cent dead; derris, 95 per cent dead; 4 per cent pyrethrum, 100 per cent dead; and two commercial mixtures, (not named) 90 and 97 per cent dead."

Certain of these materials were tested after ten weeks' exposure to air and gave the following results, says the report: "Sodium fluoride, 100 per cent dead; pyrethrum, none; and the two commercial mixtures, 95 and 100 per cent dead."

When offered a choice of six foods that might be used in baits, male German roaches preferred these foods in the following order: Ground oatmeal, dried whole milk, soybean flour with 20 per cent fat, yeast, soybean flour with 4 per cent fat, and ground whole wheat.

A bait using thallium sulfate as the poison and containing ground whole wheat, dried whole milk, brewer's yeast, and honey gave the highest kills, it was found. A 3 per cent mixture of the poison proved better than a 1 or 2 per cent, and gave a kill of about 75 per cent in cage tests. Interesting new data is also included on the commercial possibilities of various coddling moth sprays.

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Sulfur Fungicides

"The Elemental Sulfur Fungicides" is the title of a 61-page bulletin issued by the Virginia Agricultural Experiment Station, Blacksburg, Va., as Technical Bul. 82, in which the author, A. B. Groves, discusses the properties and method of utilizing these proprietary wettable products. Crude sulfur of 99.5 per cent purity constitutes the stock source for most prepared products and is obtained from domestic sources, Groves states. Particle size has continuously declined during recent years with a resultant increase in effectiveness, due to better coverage and adhesion, as well as an increase in surface exposure of the particles.

Fractionation of the manufactured sulfur is discussed, by-product flotation sulfur is described and a survey is made of the role of conditioning, wetting and dispersing agents in making finely divided sulfur suitable for sprays. The use of newly developed organic surface agents to improve wetting properties is also examined.

The author classifies the material into four groups which are discussed in detail and presented in graph form. Photo micrographs of all materials described are provided.

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Cashew Insecticide Spray

A sprayable insecticide consists of an emulsion of cashew nut-shell liquid, soap and water. The emulsion may also contain a petroleum oil, or the phenolic liquid derived from cashew nut shell may serve as the common solvent for petroleum oil and for a rotenone product. M. T. Harvey, to Harvel Research Corp. Canadian Patent No. 414,715.

Dinitro Dust for Chinch Bugs

Dinitro dust offers promise of becoming an effective substitute for creosote in chinch bug control, investigators at the Nebraska Agricultural Experiment Station, Lincoln, Nebr., have concluded. Experiments were conducted to determine the relative value of 2-4 dinitro-ortho-cresol dust as a chinch bug barrier. To reduce wind blowing, a small amount of oil was used in the dust, which was applied as a small line (about one pound per rod) in a shallow, smooth furrow. Construction and maintenance of this type of barrier was found to require considerably less time than a cresote barrier and also "compared quite favorably with creosote in effectiveness," a progress report included in the Nebraska station's 56th annual report states.

Investigations regarding the relative effectiveness of various dusts for cockroach control were completed, and of this project the report says: "Sodium fluoride, sodium fluosilicate and borax were found to be about equally toxic to the German cockroach, when readings were based on the number dead at the end of ten days. Pyrethrum was comparatively low in toxicity. The addition of pyrethrum increased the toxicity of sodium fluoride but not of sodium fluosilicate and borax."

The dusts tested in the order of their rate of lethal action were as follows: Mixtures of sodium fluoride and pyrethrum; sodium fluoride; mixtures of sodium fluoride and pyrophyllite; mixtures of sodium fluosilicate and pyrethrum; sodium fluosilicate; pyrethrum; mixtures of pyrethrum and borax; and borax.

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Pyrethrum Species

The pyrethrin contents of 14 pyrethrum plants of related genera, all growing wild in Armenia, were determined by several methods. When dusts from these plants were tested as to toxicity against larvae of *Pieris brassicae* L, the common species of plant dust, as well as dust from three other species, gave complete mortality in 48 hours. Some of the plants were quite ineffective. Toxicity was related to pyrethrin content in only a few

cases. G. M. Mardzhanyan. *Proc. Lenin Acad. Agr. Sci. U.S.S.R.* 6, No. 10, 26-9.

THE YEAR IN REVIEW

(*From Page* 37)

thing we can to increase the consumption of soap when conditions are such that we have soap enough to supply the full demand. Our industry should do everything possible to have a constructive program so that when the war is over we will employ as many people as possible. That is one of the most important problems that we are going to face as a country and as industries if private enterprise is to survive. Each of us must do our part, and by working together we can accomplish more than we can by working separately.

The Problem of Fat Supply

In 1944 as well as after the war, fat supplies and their cost will depend on government controls. These in turn may be modified as a result of high domestic production, upward trends of imports or modified demands for lend-lease, United Nations relief and rehabilitation, and commercial export. No one knows what the situation is going to be when the war is over.

Certainly during the period immediately ahead, fat salvage must go on. Furthermore, fat stretching, soap economy publicity, and careful industry rationing of soap products to customers appear to be unavoidable as long as government controls exist.

Fat Salvage

The fat salvage program represents an outstanding constructive job the soap industry has done during the past year or year and a half. The government people can check on this—but in my opinion, our industry has done one of the best jobs of all industries in this country with reference to any kind of salvage. During the first year of this effort, our industry jointly expended a million dollars to cooperate with the government, not to speak of radio time and other cooperation by individual companies. Collection of fats amounted in the first year to approximately 100,000,000 pounds.

Reviewing this record a few months ago, we decided because of the great need for fats that we should continue the campaign and step it up even more actively, especially as the government was about to grant ration points for each pound of salvaged fat. In the association board of directors, we came to the conclusion that our industry ought to raise for the campaign $125,000 a month, which in twelve months would amount to $1,500,000. All companies in the industry have been asked to contribute. The new campaign has been in effect now for a short time and will be continued if the results justify the expenditure. We believe this expenditure is needed, and that the results, now that ration points are given for fat, will justify every dollar expanded.

Wilder Breckenridge, of Kenyon and Eckhardt, the full time manager of this fat salvage campaign, has done an outstanding job and is entitled to great credit for the results that are being secured. It is necessary that our industry and the government maintain this effort, and I hope every one of us will do all he can to bring about salvage of all the fats possible. The present goal is 230,000,000 pounds of household fat in twelve months, plus about 70,000,000 pounds from Army and Navy camps, or a total of 300 million pounds a year. If any of you in the communities in which you operate, can work with newspapers or dealers or housewives or anyone else toward saving more fats and arousing even greater interest, it will be helpful and will be much appreciated.

Post-War Fat Problems

One of the post-war problems concerning fats for the soap kettle is probably going to be that with the resumption of normal imports, our present rate of domestic fat production may eventually have to be curtailed to avoid non-exportable surpluses. This will no doubt bring stronger pressure than ever from agricultural groups for higher protective tariffs on imported oils. We may have to direct special attention to this problem, which could be very important in its effect on the imports of coconut, palm kernel, palm and other needed soap-making oils.

Post-War Markets for Soap

Increased demand for soap has been brought about by intense industrial activity during the war. Will our industry organize to capture and maintain this high per capita level of soap purchase and use? I believe we should do so, and that the following circumstances will aid us:

(1) The Temporary High Birth Rate. As long as this continues, it will play a part in the consumption of many things, and certainly it will, for a period, increase the consumption of soap.

(2) Improved Standards of Cleanliness Developed through War Training. I think the record shows that after the last war, for certain types of soaps, the per capita consumption increased because of the training in cleanliness which the men had received in the military forces. They continued the standards thus developed, and influenced their families too.

(3) Improved Plumbing and Washing Facilities in Modern and Improved Housing. I imagine that after this war when we get around to where we are able to build, that improvements under this heading will play a big part in the consumption of soap.

(4) Slow Conversion of City Population Back to the Rural Areas. All of the studies that have been made, show that people in cities use more soap than people in the country. A lot of workers from the country have moved into the cities during the war. Even when they go back to the small towns and the country, they will probably continue to use more soap as well as many other things to which they have become accustomed while in the city.

Post-War Markets for Glycerine

Glycerine is now in easier supply. When the war ends, will there be a surplus? Certainly, the need for continued and perhaps expanded research and publicity through the association is indicated. It is early to predict, but we know by experience that whenever world surpluses of glycerine do exist or develop, our domestic market is the final dumping ground.

As an industry, we must, and should, take our place in the post-war period, keep up our research on glycerine and on new uses for glycerine, and do everything that we can both to dispose of more soap and of the by-product glycerine.

SANITARY PRODUCTS SECTION

Insecticides • Disinfectants • Moth Products
Floor Products • Polishes • Chemical Specialties

We'd Rather Say YES!

...BUT Circumstances are Beyond our Control

YES, we would like to supply you with all the Pyrin and Pyrethrum you can use, but for reasons known to everyone in the industry, we are forced to say no to those who depend upon us as their source of supply.

We are doing the best job we know how under the circumstances and we hope that our efforts, and the insecticides you are doing without, will save the lives of many of our men overseas.

In the meantime, we are not twiddling our thumbs. On the contrary, we are working hard to develop new products and newer methods that will help you—and us, when normal times come again.

So remember, if we have been unable to meet your requirements in the past . . . or if we must say no again in the future—we hate to say it—we'd rather say *yes*.

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SPRAYS
WHEN AN INSECTICIDE SMELLS GOOD
IT SELLS GOOD!
That's why Felton Kerox Perfumes have been so widely used in many of the country's fastest-selling insecticide sprays.
Try them without delay! You'll find there is a Felton Kerox Perfume for your particular insecticide product—whether you use Pyrethrum base or some of the new synthetic bases. Ask for Kerox Perfumes.
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Send us a sample of your unperfumed
spray so that our chemists can
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In your
household spray
VELSICOL
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GIVES

Longer lasting repellency And AA Kill

Velsicol AR-50 shows the highest degree of initial repellency. Scientifically tested against other toxic ingredients, it proved itself far superior as a repellent. VELSICOL AR-50 definitely has repellency *plus*.

VELSICOL AR-50 in a household spray gives AA kill too. It's efficiency that the consumer demands. High kill plus a repellency that lasts. VELSICOL AR-50 gives you both these features.

If you want the best household spray on the market, find out today about VELSICOL AR-50. It's available . . . it's economical . . . its quality never varies!

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For Cattle Spray VELSICOL AR-60

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INSIDE NEWS

FEBRUARY PREPARED BY NATIONAL CAN CORPORATION, NEW YORK, N. Y. 1944

Industrial Revolution in Latin America May Affect U.S. Chemical and Drug Exports

STEEL MILL AT VOLTA REDONDA, BRAZIL, is typical of Latin America's recent expansion in steel-making capacity. Mexico, Argentina, Chile, Peru, Colombia have similar steel projects planned or under consideration. Shortage of coking coal is being partly met by low grade Brazilian deposits which can be used if processed and mixed with high grade imports.

With most long-range observers placing their trust in an expanded export trade to help cushion the shock of diminished war production in the U. S., a review of the increasing industrialization of Latin America is important to every U. S. business man.

War conditions are largely responsible for increased production in most cases, such as the cotton-textile and shoe industries, foodstuffs, rubber, chemicals and drugs. Wartime loss of outside supply sources . . . loans, technical aid and machinery from the U. S. to assist Latin America in supplying United Nations' war needs . . . are the principal factors.

To what extent will Latin America's new role as industrial producer modify U. S. export plans? The answer can only be found in a close analysis of Latin America's capacity to produce specific products, and to expand the demand for them.

A leading publication has published extensive articles on industrialization below the Rio Grande. There is space here for only a brief review of certain aspects of the subject.

The chemical industry, for instance, may find that after the war potential Latin American customers in textile, synthetic fibre, tanning, dye, soap and paper plants will be satisfactorily served by chemicals produced in Latin America itself. Raw materials are available: Chilean nitrates, arsenics of Mexico and Brazil; sodium carbonate and many wild and cultivated vegetable products which have chemical value.

Remembering that chemical development is only one aspect of Latin American industrialization, the following facts are significant: Brazil's aluminum sulphate production is now double its pre-war total; more than 100 chemical and pharmaceutical items have gone into production in Sao Paulo since January 1941; Argentina is making plans to make power alcohol from grain crops and wood by-products; Venezuela is working its own sodium bicarbonate deposits, to supply its own textile mills, soap plant and glass factory; a new sulphuric acid plant in El Salvador is supplying that country, and Honduras and Nicaragua as well; Peru has begun production of white arsenic, copper sulphate and other chemicals.

As far as drugs are concerned, scarce imports of perfumes, toilet waters, lotions, soaps and many pharmaceuticals has stimulated Latin American production. Argentina now manufactures over 90% of all medicinal and pharmaceutical products sold there.

On the other hand, while it is possible to exaggerate the glowing possibilities of U. S. exports to Latin America after the war, there are many products in chemical and drug categories which are not likely to be produced in Latin American plants. And it must be remembered that most of Latin America's increased industrialization benefits U. S. suppliers of capital goods, on which this industrialization depends, and will tend to stimulate a higher standard of living and increased purchases of other exportable products.

Furthermore, Latin American resources are still predominantly agricultural, and, up to date, the shortage of coking coal works against the development of heavy industry. Independence of iron and steel imports has never been achieved and is barely possible in only a few Latin American countries.

In Washington and elsewhere, some planners anticipate that Latin America may take the place of the Orient as a supplier of certain products, such as rubber and quinine, formerly shipped the long Pacific route.

In general, and in spite of increased industrialization, there will be many opportunities for the sale of finished products below the Rio Grande. In taking advantage of them, three factors remain decisive: political stability, credit, and the diplomatic attitude of U. S. traveling personnel. These three are intimately related; and it cannot be denied that a certain degree of industrial autonomy in Latin America will go far toward removing the political and psychological, as well as the purely economic barriers which occasionally have threatened satisfactory trade relations. 556

Pasteurized Apple Juice

A method of preservation involving pasteurization marks a distinct advance in the preservation of apple juice. The process retains much of the original aroma, flavor and appearance of the freshly-pressed apple juice. 557

Vineyard Restoration

An experiment with a run-down vineyard of Concord grapes has increased yields 1400 pounds to the acre by the use of fertilizer at a determined rate. In a five-year experiment, equally good results were obtained whether the element was supplied by measured applications of ammonium sulphate or sodium nitrate to the acre. 558

Having Label Trouble?

War-time demands on packaging and canning for overseas shipment have brought ever-increasing problems. Waterproof labels and adhesives have come out of the laboratories and recently a newcomer has been announced by a national group. These welcome newcomers may be applied by standard can labelling machinery. In tests, they withstood seven days in a predetermined sodium chloride solution at room temperature. After air drying, the labels were somewhat wrinkled but were

NATIONAL CAN

PLANTS: NEW YORK · BOSTON · BALTIMORE · CHICAGO · HAMILTON, OHIO · FORT WAYNE, INDIANA

firmly adherent. The additional cost of waterproof labelling is slight, an estimate being available on a case basis.

The adhesives have added qualities of being non-staining and corrosion proof. A hot melt pick-up resin is also available for spot labelling, this having similar properties. 559

Protein Recovery

Protein may be recovered from vegetable material by adjusting the acidity of an aqueous solvent to the isolectric point of the desired protein and selectively heating to bring the protein into solution. Then the solid material is removed and the hydrogen ion concentration of the solution adjusted to precipitate the protein. 560

Salmon Increase?

Restoration of the Fraser River salmon fisheries to their former great productivity is planned by the International Fisheries Commission. Details of the plan have not been revealed, but they apparently involve a new arrangement at Hell's Gate to enable the fish to get past the boiling rush of water in the canyon, an obstacle created in 1913 when the side of the cliff slid into the gorge. A fish ladder is there now, but it is of use only when the river is at a certain level. 561

Flowmeter

Newest and most advanced phases of the principles and practices of flowmeter engineering are available. If you've a problem in liquid measurements, you can learn for instance of a new and more accurate method of correlating temperature expansion data on petroleum oils; a quick method of correcting tap locations, a short-cut method of correcting for viscosity. If it's pulsating gas flow measurements or working equations and tables for moisture and supercompressibility, we'll tell you where you can get information for use of men in the field as well as by technical institutes. 562

Electronic Inspector

Industry's response to the introduction of a new rayproof, shockproof, self-contained X-ray unit has indicated a strong war-time interest in this electronic inspection device. If you're interested in its industrial uses, including inspection of metals, plastic and hard rubber moldings, food and pharmaceutical products for detection of foreign materials and the like—or if it's inspection against sabotage or theft, we'll tell you more. 563

Shipping Case Printing

A canners' shipping case printing machine automatically impressing identification (in one or two colors) on both ends of the case, after the cases have been filled and sealed, is available to fill a new and urgent need in packaging of fruit and vegetable containers. 564

Technical Topics

WOOD LIGNIN—A new industry, based on wood lignin, is a stray postwar possibility and is based on an experiment where lignin, placed in a bomb with hydrogen and exposed to great pressure, turned the brown powder (lignin) to a transparent liquid. So far this liquid has been fractionated into wood alcohol and four compounds, all new to the chemical world. 565

DIATHERMY IN INDUSTRY—Diathermy, the artificial fever machine which heats interior human tissue without burning the skin, is being applied in industry to metal for welding and annealing; in wood for heat curing of resins in plastic wood. 566

DYE AS LIFE SAVER—A dye used to spot leaks in water systems is now used to save airmen shot down over the ocean. A waterproof package of this dye, attached to the life jacket and ripped as a flyer lands in the water, soon makes a brilliant color patch visible several miles away. 567

ACTION IN REVERSE—Plant hormones may work in opposite directions—prevent the formation and opening of buds on potatoes—making possible storage for indefinite periods or timing the opening of buds on fruit trees to avoid frost injury. 568

HYDROQUINONE—Manufacture by an improved electrolytic method is claimed in a recent British patent. 569

SYNTHETIC MENTHOL—A new process for the manufacture of synthetic menthol at a cost lower than that for the natural product has been developed. Its development could make the United States independent of imports from Japan which before the war used to amount to about 500,000 pounds annually. 570

NEW ANAESTHETIC—Propethylene is the name applied to what was recently declared to be a new and effective anaesthetic. It is said to be three to five times more powerful than the usual ether, and safer in use. 571

DETERIORATION HALTED—Dried egg deterioration during storage at high temperatures is retarded when certain carbohydrates are added to the pulp before drying. It was also found that the addition of carbohydrates to the egg pulp before spray-drying greatly increased the aerating power. 572

JAP BEETLE—Ethylene dichloride in the form of an emulsion prepared from an emulsifiable mixture of this compound has been demonstrated to be an effective insecticide for the immature stages of the Japanese beetle. Immersion of plants for 10 seconds in an emulsion prepared at the rate of one gallon of the emulsible mixture to one hundred gallons of water resulted in mortality of all larvae. 573

DAIRY LICE — A satisfactory replacement for rotenone in the control of lice on dairy cattle has been found. A dust, composed of one part of this replacement seed to ten parts of wettable sulfur can be relied upon to control all species of cattle lice. A second seed, one part to ten parts wettable sulfur, has also been proved very effective. 574

TEXTILE PRESERVATIVE — Quaternary ammonium salts have been introduced as effective mildew-proofing agents for textiles. This material is declared to be particularly resistant to chaetomium globosum and metarrhizium. 575

HYPERTHYROID?—Thiourea has been shown to be effective in the treatment of hyperthyroidism. The investigations revealed that compounds having thiourea in their make-up, or that simple compound itself, prevent the thyroid from synthesizing the undue amounts of thyroxine. 576

PURPLE IDENTIFICATION—Mercury fulminate dermatitis incidence in the explosives industry is reduced by the use of a special liquid soap combination. The soap is ordinarily orange in color, but on contact with mercury on the skin changes rapidly to a deep, easily recognizable purple. 577

MILL SCALE OXIDE—Ferric oxide of high purity can be produced from iron ore or mill scale, based upon the intermediate preparation of ferric nitrate, it is claimed in a recent British patent. The process depends upon the reaction of nitric acid with the oxide or sulphide ore, and thereafter decomposing the ferric nitrate to ferric oxide and nitric acid by heating. 578

Every effort will be made to furnish additional information on these articles. Where such information is not obtainable, we will refer inquiries to the original source of the article. Write to National Can Corporation, 110 East 42nd Street, New York City. Please mention the number at end of article—also name of the magazine you saw it in.

NATIONAL CAN CORPORATION

Manufacturers of

SANITARY PACKERS CANS · PLAIN AND LITHOGRAPHED CANS FOR FOODS, DRUGS, OILS, PAINTS, VARNISHES · STEEL DRUMS AND PAILS

Deliveries Subject to Priority Ratings

(*Advertisement*)

TO MAKE A HIGH GRADE FLY SPRAY

You Must Start With A HIGH GRADE CONCENTRATE

HI-TOX 20

possesses all the qualities a high grade concentrate must have.

HI-TOX 20

will produce a "top" insecticide which means satisfied customers, repeat business, pyramiding sales volume.

HI-TOX 20 qualities which will help you build that pyramid are:

EFFICIENCY —High Kill. Quick knockdown.

SAFETY—Hi-Tox 20 is not injurious to human beings and domestic animals. Does not stain or injure delicate materials or fabrics.

UNIFORMITY—Hi-Tox 20 is laboratory controlled throughout its entire manufacturing process.

STABILITY—Hi-Tox 20 does not deteriorate even under extreme variations of temperature.

PLEASANT—Hi-Tox 20 provides an agreeable insecticide, one which does not contaminate foods, or leave a vile odor.

ECONOMY—The cost of Hi-Tox 20 is low. The dilution necessary to produce an AA spray is but 6%.

Hi-Tox 20 is a specific insecticide designed to control specific insects, flies, mosquitoes, and other flying insects.

Send for testing samples, prices or other required information

Use Morticide or Super-Morticide
for Bed-bug and Roach control.

ASSOCIATED CHEMISTS, INC.

1906 NORTH HALSTED STREET, CHICAGO, ILL.

Texas Sales Office—The Carroll Co.
1323 Wall St. Dallas, Texas

Eastern Sales Office—Velsor Wright Co.
8 West 40th St. New York City
BRyant 9-5254

Invisible tools of VICTORY

Atoms are about the smallest things a man can catch and keep. Too small, in fact, to see—but they're doing a mighty job for Victory.

Consider the atoms of benzene and chlorine which, when combined, have given you such outstanding service in Du Pont PARAPONT* paradichlorobenzene. Because they are doing an outstanding wartime job, you may not find PARAPONT readily available in the quantities you need.

Chlorine, for example, is used in the manufacture of plastics, synthetic rubber, anti-knock gasoline, fire-extinguisher fluids, refrigerants, dyestuffs, drugs, bleaching agents for textiles and paper, solvents for dry cleaning; also in degreasing aluminum, steel and other vital war metals.

Benzene, probably the most versatile of all substances from coal, is also going into the making of countless war products.

When peace comes and these atoms return from war production, PARAPONT will be ready in abundance to serve you with the same high standards of purity, uniformity and adaptability as in the past. E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Dept., Wilmington, Del.

*Trade mark

DU PONT

PARAPONT

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

Let's take a look at...

PYRETHRUM

1944—and After

THERE is no faint possibility that the present year will see the household insecticide industry re-introduced to pyrethrum. Available supplies are urgently needed for mosquito control in combat areas, and one need not have access to the files of the General Staff to predict increasing military activity in some of the worst malarial regions of the world.

It is even more certain, however, that the plantings now being encouraged to meet military requirements will go on flowering profusely after the guns are silent. The long-range view promises adequate and even ample supplies at reasonable costs.

Fortunately, substitutes have been available to carry through what might easily have been a disastrous period for the industry and its customers, but none yet has challenged pyrethrum's two great advantages—toxicity to a wide variety of insects, and safety to men and animals.

D.O
ESTABLISHED
1798

DODGE & OLCOTT COMPANY

180 VARICK STREET, NEW YORK 14, N. Y.

Boston Chicago Philadelphia St. Louis Los Angeles

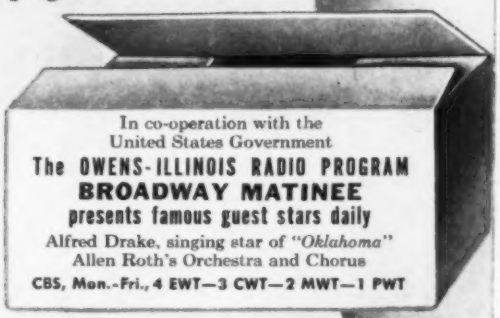
Plant and Laboratories, Bayonne, N. J.

PAPER'S PART* in the Picture

The critical paper situation is the prime "bottle neck" in the flow of glass containers, essential in the distribution of packaged products. Corrugated paper cartons are as necessary for the delivery of empty and filled bottles and jars as are the raw materials used to make glass.

As one of the largest makers and initial users of corrugated reshipping cartons, Owens-Illinois long ago started waste-reduction campaigns in every plant, effecting notable savings of paper. Owens-Illinois workers, fully aware of the need, not only co-operated in cutting waste but also brought in old newspapers and magazines from their homes to ship to paper-makers.

The paper situation is of serious importance to every manufacturer and distributor of packaged products. Having done our utmost in saving paper, we feel justified in calling your attention to the urgency of the situation. Every manufacturer, wholesaler and retailer who ships or receives cartons can do his part by care in handling, by reusing them and by supporting salvage campaigns.



OWENS-ILLINOIS
GLASS COMPANY TOLEDO, OHIO

In co-operation with the
United States Government
The OWENS-ILLINOIS RADIO PROGRAM
BROADWAY MATINEE
presents famous guest stars daily
Alfred Drake, singing star of *"Oklahoma"*
Allen Roth's Orchestra and Chorus
CBS, Mon.-Fri., 4 EWT—3 CWT—2 MWT—1 PWT

PAPER IS A VITAL PART OF THE WAR PICTURE

It Can Help You!

National Association of INSECTICIDE and DISINFECTANT MANUFACTURERS Founded 1914

YOUR Association, the National Association of Insecticide and Disinfectant Manufacturers, is carrying an advertising schedule addressed to the Dairy Products Industries, *in order to help you sell more of your products.*

Your Association selected The Dairy Industries Unit, which we publish, to carry their advertising messages.

It is most logical for you to advertise in the Dairy Industries Unit in order to cash in on the Preparation for Selling, which the Association is doing.

The Dairy Industries Unit is composed of three monthly dairy products business papers: The MILK DEALER, NATIONAL BUTTER and CHEESE JOURNAL, and The Ice Cream REVIEW.

You may advertise in the three papers, as a unit, or select one or more which is especially fitted to produce business in the territory you are able to serve economically.

We will be glad to tell you which of the publications you can use with the best prospects for business. And we will quote rates, etc., when you request them.

Since both insecticides and disinfectants are used more extensively in the spring and summer months—when insects are prevalent and milk production is heaviest—we suggest this as being the BEST time to begin YOUR advertising campaign.

Write today for full information.

Yours very truly

THE OLSEN PUBLISHING COMPANY
505 West Cherry Street
Milwaukee 12, Wisconsin

The MILK DEALER ★ National BUTTER and Cheese Journal ★ The ICE CREAM REVIEW

PRENTISS
CLARIFIED
PYRETHRUM
CONCENTRATES

...Freedom from Pestilence

Pyrethrum is doing a big job on our war fronts helping to protect our fighting men against vermin — keeping to a minimum the possibilities of illness caused by insects that would seriously affect the strength and spirit of America's fighting men. That's why pyrethrum is almost unobtainable.

Our men are getting every ounce of protection we can give them abroad, and we are working for the time when we will again have available *natural* pyrethrum in sufficient quantities to supply you with an abundance of Prentiss Pyrethrum Concentrate #20. In the meantime, keep in mind that pyrethrum is unobtainable at home because it is fighting for freedom abroad.

R. J. PRENTISS & CO.

80 JOHN STREET, NEW YORK 7, N. Y. 9 SO. CLINTON ST., CHICAGO 6, ILL.

Insects are true *Saboteurs!*

THEIR main objective is our food supply, — in field, in process, in storage. That they reach it and take it is proved by the fact that each year they destroy an estimated $1,423,948,000 worth of food. Rats do plenty of damage, too. Their annual score is $189,000,000. Total damage due to insects and rodents runs to over $2,000,000,000 worth of food, — food we can ill afford to lose. This means between 6 to 7% of our food supply — or almost as much as we lend-leased to all our allies last year.

•

In peace time these figures would be bad enough, but in war time they can't go on. They must be cut!

•

Here are some more! In California the loss of tomatoes due to the depredation of the tomato fruitworm amounted to ½ ton of canned tomatoes an acre, enough to feed 125 persons for one year. The pea weevil in Washington, Oregon, and Idaho destroys enough peas in one year in an acre to feed 18 persons.

•

Insect control is a vital wartime necessity. Manufacturers of insecticides have a job to do. Their's is the task of seeing that the food processor receives an honest dollar's worth of the right insecticide when they need it. The decreased availability of pyrethrum and rotenone in insecticides means that insecticides must be applied where and when it will do the most good.

•

Manufacturers should be well informed so that they can relay their knowledge through advertising and promotion to their clientele. THE CANNER can do this job for you. Why not write us today?

The CANNER

an indispensable journal for all food packers

140 N. Dearborn Street Chicago 2, Illinois

SINCE 1895

A Reliable Source of Supply for QUALITY ESSENTIAL OILS

Refined Balsams, Oleoresins,

Odor Neutralizers & Perfume Oils

Under the LABEL, SEAL AND GUARANTEE of M M & R are a host of Essential Oils and Related Products in daily use by the Soap and Allied Industries to perfume and deodorize soaps of all kinds, sprays, insecticides, para blocks and other specialty items.

Our analytical department is at your service.

M M & R repeats an oft-mentioned slogan—"If your problem is how little instead of how much you can spend for perfuming or deodorizing, M M & R can be of service to you."

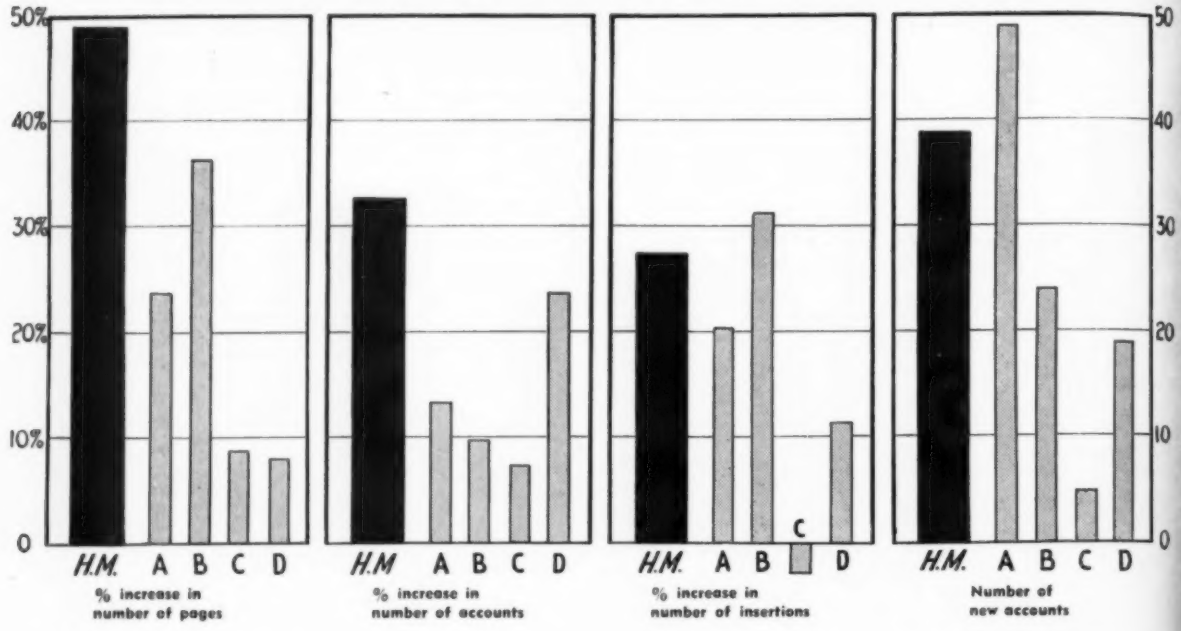
MAGNUS, MABEE & REYNARD, INC.

QUALITY ESSENTIAL OILS, BALSAMS, AROMATIC CHEMICALS, BASIC PERFUMES, FLAVORING MATERIALS . . . SINCE 1895

16 DESPROSSES STREET, NEW YORK CITY • 221 NORTH LASALLE STREET, CHICAGO

WEST COAST REPRESENTATIVES—San Francisco: BRAUN, KNECHT, HEIMANN CO. • Los Angeles: BRAUN CORP.
Seattle, Portland, Spokane: VAN WATERS & ROGERS, INC. • Canada: RICHARDSON AGENCIES, LTD., Toronto

PROGRESS REPORT



Here is a picture of what advertisers think of HOSPITAL MANAGEMENT.

It shows that they have given HOSPITAL MANAGEMENT the greatest percentage increase in advertising volume accorded any publication in this field for the first six months of 1943.

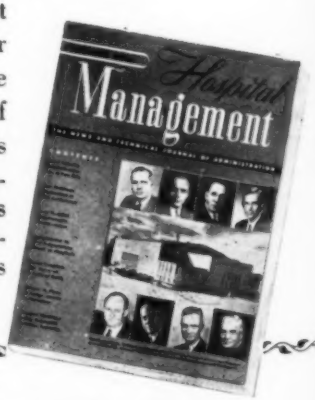
This is a picture of interest to you because it points the way to one of your biggest markets. More than 1,125,000 people occupy hospital beds every day and a like number are needed to attend their every want. They must live in an atmosphere of super-cleanliness.

HOSPITAL MANAGEMENT offers you a most economical and effective method of telling the buyers in this market of the advantages of your products. Going directly to more than 5,000 superintendents and department executives, HOSPITAL MANAGEMENT is able to and does produce results for its advertisers.

Editorial vitality — in developing, promoting and crystallizing opinion — has given HOSPITAL MANAGEMENT the tremendous reader-interest which made possible the astonishing record charted above.

Its editorial achievements, coupled with exclusive news-gathering facilities, give each issue *impact* on the market. That in turn spells results for advertisers, for only editorial power can put punch into advertising pages.

There is a great deal more to our story. We'd welcome the opportunity of giving you details about how our supplementary services will help your advertising create sales for you.



HOSPITAL MANAGEMENT

The only Hospital publication which is a member of both the ABC and ABP.

100 E. OHIO STREET, CHICAGO (11) • 330 W. 42nd STREET, NEW YORK, (18)

First, a full line of finest amber and crystal standardized glass containers to choose from—narrow and wide mouth rounds, blakes and plain round jugs—in many sizes and capacities. All are uniformly strong, safe, and economical to handle. *Second*, five metal and molded closure types, assuring an efficient closure—capable of numerous reseals—for every packaging need. *Third*, more efficient, coordinated service from one source of supply. *Fourth*, Experimental and Research Laboratories ever ready to advise you on special packaging problems. *Fifth*, an Engineering Division to help you set up production lines. *Sixth*, a business organization whose years of service assure you of a dependable and reliable source of supply. *Seventh*, expert counsel always available from highly trained, experienced representatives.

"Meet Corliss Archer" every Saturday afternoon, entire coast-to-coast network CBS

W. P. CARROLL, one of Anchor Hocking's ablest and most popular men, has been a member of the Anchor Hocking family for 17 years.

ANCHOR HOCKING
GLASS & CAPS
ANCHOR HOCKING GLASS CORPORATION · LANCASTER, OHIO

. . . *Official Test Insecticide* (O.T.I.)

SUPPLIES of the 1943 Official Test Insecticide for evaluating fly sprays by the Official Peet-Grady Method are available only from the office of this Association. The O.T.I. is priced at $5.00 per dozen six-ounce bottles, plus shipping costs, to members of this Association. To others, there is an additional service charge of $1.00 per dozen. Single bottles are $1.00 each. Check with order is required.

The 1943 Official Test Insecticide is required for all official testing of fly sprays by the Peet-Grady Method for the period from June 1, 1943 through May 31, 1944.

National Association of
Insecticide & Disinfectant Manufacturers, Inc.

110 East 42nd Street — New York

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NEO-NEUTRACENE

NEW EFFECTIVE DEODORIZER FOR FLY SPRAYS

Neo-Neutracene, one of our newest developments, fills the demand for a powerful and low cost fly spray deodorizer in which either Pyrethrum or Lethane is used. It has a remarkable capacity for correcting and overcoming the odor of Kerosene, even when the lower grades are used.

Just the right amount of Neo-Neutracene in the fly spray entirely neutralizes its odor. Unlike other deodorants, it does not add a definite or flowery odor to the spray but simply changes the disagreeable odors of Kerosene, Pyrethrum, Lethane, Thanite, etc. to an indefinite, more agreeable and more acceptable odor.

Write us for prices and samples of Neo-Neutracene for your own products.

AROMATIC PRODUCTS, INC.

15 EAST 30th STREET, NEW YORK 16, N. Y.

ATLANTA, CHICAGO, DALLAS, MEMPHIS, PITTSBURGH, SAN FRANCISCO, LOS ANGELES

YOUR 8.5 BILLION DOLLAR Mass Feeding Mass Housing MARKET

Each month INSTITUTIONS Magazine reaches:

- HOTELS
- HOSPITALS
- SCHOOLS
- RESTAURANTS
- INDUSTRIAL CAFETERIAS
- COLLEGES
- PUBLIC INSTITUTIONS
- YMCA's and YWCA's
- RAILWAY SYSTEMS
- STEAMSHIP LINES
- PUBLIC BUILDINGS
- OTHER INSTITUTIONS

and . . . for the duration of the war—in addition to its regular circulation, INSTITUTIONS Magazine is being sent to buyers and specifiers of mass housing and mass feeding products for those directly engaged in the war effort.

A BIG *Market of* BIG *Consumers*

THE readers of INSTITUTIONS Magazine represent a post-war market of huge proportions . . . an 8.5 billion dollar post-war market that is yours today! The readers of INSTITUTIONS Magazine are the big consumer buyers of all types of mass housing and mass feeding products . . . the buyers by whom this 8.5 billion dollars will be spent. The readers of INSTITUTIONS Magazine will expend a large percentage of this figure for maintenance supplies of all kinds.

These are the men and women who depend upon INSTITUTIONS Magazine for authoritative assistance on their immediate and post-war problems . . . for the type of product information they must have in directing their planning and buying on a practical and sound basis.

Manufacturers of soaps, disinfectants, insecticides, floor treatment materials, cleaning compounds and other similar products who are now advertising to this huge market through INSTITUTIONS Magazine are using the most effective and most economical means of approaching these big consumer buyers. These manufacturers are not only enjoying the immediate benefits of this market . . . they are also building for themselves a preferred position among institutional managements in the post-war period.

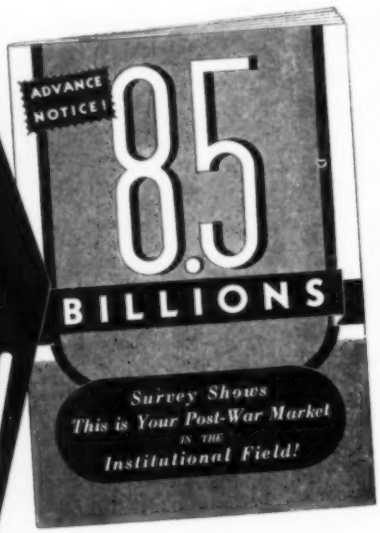
INSTITUTIONS Magazine is the only publication through which you can reach all related divisions of the institutional field. If your present or contemplated products have an application to this field, your advertising messages in the columns of INSTITUTIONS Magazine will gain for them the kind of acceptance they must have to share in the 8.5 billion dollar institutional market.

YOUR **POST-WAR MARKET** IS HERE TODAY!

. . . NEW STUDY GIVES

FACTS AND FIGURES!

Consult Your Advertising Agency



To determine the size and extent of the post-war market in the institutional field, INSTITUTIONS Magazine conducted a survey among over 50,000 hotels, hospitals, schools, colleges, restaurants and other types of institutions. The findings of this survey—which have been presented in this booklet—are of special interest to all manufacturers now serving or planning to serve this field. To obtain details on this survey, or for information on the application of your products to the mass feeding and mass housing market, consult your advertising agency or write direct.

INSTITUTIONS MAGAZINE
1900 PRAIRIE AVENUE
CHICAGO 16, ILL.

ORBIS

"AQUASPRAY"
PERFUME OILS
(REQUIRE NO ALCOHOL)

ORBIS "AQUASPRAY" PERFUME OILS are recommended for the preparation of sprays for deodorizing and purifying foul air in homes, institutions, hospitals, theatres, etc. They require no alcohol.

By merely mixing 3 ounces of Aquaspray Perfume Oil and 3 ounces of Formaldehyde Solution U.S.P. with sufficient water to make 1 gallon, a spray in a permanent milky emulsion form is obtained at a finished cost of less than 38 cents per gallon.★ This is a real profit producer.

ODORS AVAILABLE

Apple Blossom	Lavender	Persian Bouquet
Bouquet Kashmir	Lilac	Pineneedle
Bouquet #550	Locust Blossom	Rose
Carnation	Mint	Syringa
Gardenia	Narcisse	Violet
Honeysuckle	New Mown Hay	Wintergreen
Jasmin	Orange Blossom	

PRICE

$2.00 per pint — $14.00 per gallon

★ Based on the gallon price of "Aquaspray."

A request on your letterhead will bring further details and sufficient sample for 1 quart of finished spray.

ORBIS
PRODUCTS CORPORATION

215 PEARL STREET, NEW YORK - FACTORY & LABORATORY, NEWARK, N.J.

CHICAGO 660 North Dearborn St. | PHILADELPHIA 610 Brown Bldg. | BOSTON 89 Broad Street | MEMPHIS, TENN. 1620 Carr Ave.

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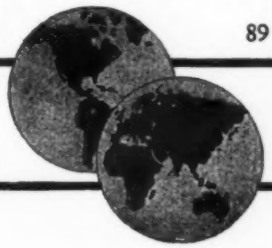

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as

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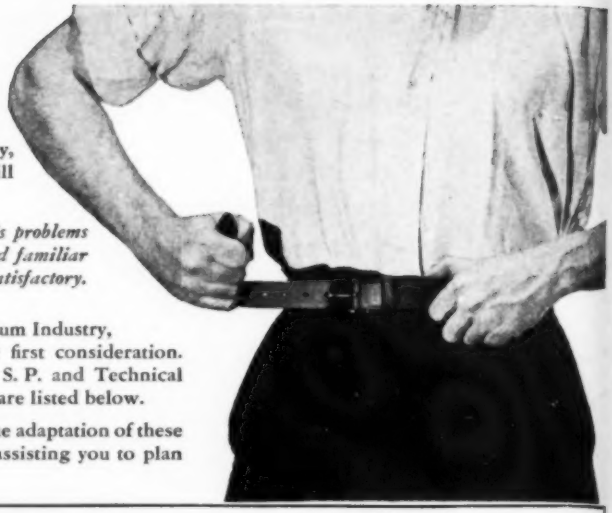

Cheerfully—eagerly, because it's our contribution to Victory, all of us have accepted the fact that for the duration, we will have to tighten our belts and "do without."

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Compensation shall comprise base salary and participation in results. The employer is NOT seeking a man with limited ambition.

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A SECTION OF SOAP

Official Publication
National Association of Insecticide & Disinfectant Manufacturers

SPECULATION on the position which pyrethrum will hold in the household insecticide market after the war has been rife in the industry ever since its supply for civilian uses was cut off. As new chemical developments are announced, those who maintain that pyrethrum is through as an insect spray ingredient, repeat their predictions. There are those, however, who are just as certain that more pyrethrum than ever will be used after the war,—that the demand for all types of household, industrial and public health insect control products will be great enough that it will absorb all the synthetic raw materials available plus pyrethrum too. Although progress in synthetic insecticide development has been rapid during the past few years, and these are bound to play a large part in the post-war picture, we still believe it that those who are counting pyrethrum out, are a trifle premature to say the least.

WHENEVER materials become scarce and hard to buy, we invariably receive numerous inquiries from firms in the trade as to where they can purchase this or that. Right now the products of interest seem to be cartons and other paper containers. Although we appreciate this implied confidence in our knowledge and ability, we must break down and admit that we are not magicians. When these or other items are scarce in two or three places, they are invariably scarce all over. If the company which has been supplying you for some time past cannot do so now, the chances are that a new source of supply cannot or will not be of help. We wish that we could pull rabbits out of a hat upon occasion, but we must confess that our attempts in the past have failed.

THAT leading public health authorities are preparing to meet the problem of so-called "imported" epidemic diseases which may be brought into the United States by members of our armed forces returning from the tropics or other infested areas, is apparent from published comments. The menace of introducing malaria, typhus, yellow fever and other diseases is obvious. Most of those mentioned are insect-borne diseases. Recently, a leading American drug manufacturer issued a map showing some sixteen diseases which might be brought back by our returning troops. Of these, the majority are known to be spread by insects.

Always tied up rather closely with the public health, insect control and the materials and methods for its accomplishment now become more vital in health protection. Where the main emphasis over the past few years in the home markets has been on insecticides to protect war food supplies,—in field, in processing establishments, in home or restaurant,—it now bids fair to shift to the prevention of insect-borne diseases.

Of matters being considered in post-war planning by the insecticide industry, the problem of insect disease carriers and their impact on insecticide demand looms large. And those who suggested not so long ago that flies and mosquitoes on the home-front would have to depend on the fly-swatter for control, may find themselves eating their words.

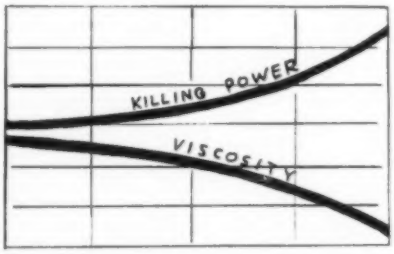
REMEMBER?

10 YEARS AGO

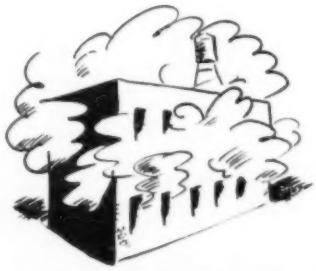
JERSEY CITY, N.J. OPENED A DRIVE TO RID CITY OF RATS

A STABILIZED ROTENONE EXTRACT WAS PATENTED BY HAMMOND PAINT AND CHEMICAL COMPANY

U.S. DEPT. OF AGRICULTURE ASSERTED THAT CARDBOARD CONTAINERS IMPREGNATED WITH MOTH REPELLENTS DID NOT GIVE MOTHPROOF PROTECTION

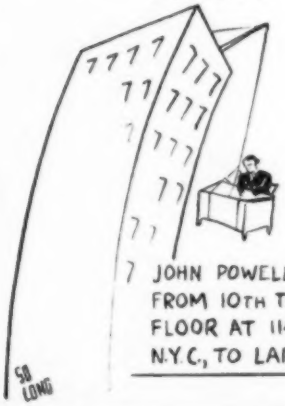


STUDIES BY MURPHY AND PEET SHOWED THAT KILLING POWER OF PETROLEUM BASE INSECT SPRAYS VARIES INVERSELY WITH VISCOSITY



FIRE DAMAGED OFFICE AND WAREHOUSE OF GEO. B. ROBBINS CO., BOSTON DISINFECTANT MFR.

TEXAS CO. WENT INTO PRODUCTION OF HOUSEHOLD PYRETHRUM SPRAYS FOR JOBBERS AND DISTRIBUTORS



JOHN POWELL & CO. MOVED FROM 10TH TO 17TH (TOP) FLOOR AT 114 E. 32ND ST., N.Y.C., TO LARGER SPACE

MARKET REPORT — PYRETHRUM PRICES HIGHER: POWDER, 34¢; 20 EXTRACT, $7.50 GAL.

SAMUEL CABOT, BOSTON DISINFECTANT MFR. WAS NOMINATED FOR OVERSEER OF HARVARD COLLEGE

Effect of Organic Matter on GERMICIDAL PERFORMANCE

By Emil G. Klarmann and Eleanore S. Wright*

Lehn & Fink Products Corporation

IN the comparatively recent past a great many new chemicals have come to light, possessed of an enormous germicidal potency, particularly when compared with the familiar materials heretofore employed for their antibacterial effects, such as the disinfectants of the cresylic, coal tar oil, and pine oil classes. Fundamental information as to the bacteriological performance of all such substances has been, and still is, furnished largely by the F.D.A. testing method whose authors at the time of the original publication hardly contemplated its use in the bacteriological evaluation of the "high-powered" antibacterial material of more recent date. While this method has been giving reasonably consistent and reproducible results with the disinfectants commercially available about the time of its pubilcation, perhaps the anticipation of events to come may have made itself felt in the adoption of a regulatory requirement, viz., that, for practical purposes, disinfectants were not to be employed in the concentrations in which, by the prescribed bacteriological test, they have been found to be germicidal with respect to *Eb. typhosa*, but that they were to be used in the much higher concentrations corresponding in their action to a 5 per cent solution of phenol; this, as is known, is the basis of the existing custom to recommend for general disinfecting purposes a concentration arrived at through multiplication of the phenol coefficient of any given disinfectant by 20.

The author or authors of this regulatory requirement evidently realized that, in spite of the severity of the F.D.A. test which employs an appreciable relative proportion of a dense and vigorous bacterial culture, the "safety factor" thus provided, was inadequate. By requiring the use in practice of a disinfectant concentration corresponding to 5 per cent of phenol, an additional and seemingly adequate safety factor was established, notwithstanding the utterly arbitrary character of this requirement. By way of illustrating this situation in the case of phenol, this chemical kills a resistant culture of *Eb. typhosa* frequently in a dilution of 1:80; the required use in the practice of disinfection of a 5 per cent or 1:20 dilution visualizes the possibility of an impairment, of its germicidal activity to such an extent that only 25 per cent of it is left, (or 75 per cent lost) and this in spite of the fact that, e. g., in the presence of 10 per cent horse serum this impairment actually amounts only to about 10 per cent.

It is the purpose of this presentation to emphasize the greater relevance of these considerations to the problem of "high coefficient" versus "low coefficient" disinfectants.

This problem is not altogether a new one. But it is one thing to compare, e. g., two coal-tar disinfectants containing about the same proportion of active ingredients, but with the phenol coefficients of respectively 6 and 12, and quite another to evaluate comparatively the bacteriological merits of a coal-tar disinfectant of standard composition with a phenol coefficient of 6, and of a synthetic phenolic or a quaternary ammonium disinfectant with a phenol coefficient of around 200. Assuming that both the "low coefficient" and the "high coefficient" disinfectants are diluted to the proper extent, as required for practical application, what can be said in favor of the one or the other solution as far as their antibacterial performance is concerned?

Intensification of antibacterial power by suitable variation of the chemical structure of the fundamental molecule is not new either. Although considerable work has been done on this subject in the recent past, certain basic observations were made in the case of phenol substitution as early as 1906 by Bechhold and Ehrlich (1). But whereas the modern organic chemist appears to be interested in pushing the antibacterial efficacy ever higher and higher, those older research workers, while interested in the same idea did not forget to consider the concomitant factor of the influence of "organic matter" upon the practical antibacterial performance of their "high-powered" compounds. The following sentence is quoted (in translation) from their paper to illustrate this point: ". . . the introduction of halogen (Cl, Br) into phenol increases its germicidal action with the number of halogen atoms introduced, one molecule of pentabromophenol having the same effect on *B. diphtheriae* as 500 molecules of phenol" and "the most effective disinfectants (such as tetrabromo-o-cresol or tetrachloro-o-biphenol) fail to act in the presence of serum, although they do not precipitate it." In 1909 Laubenheimer (2) showed that monohalogen substituted alkyl phenol derivatives are more powerful than the corresponding halogen free compounds; but again the partially inactivating influence upon their antibacterial efficacy of organic matter was not overlooked.

*Before Natl. Assn. Insecticide & Disinfectant Mfrs., New York, December 7, 1943.

There were a number of pertinent papers in the following years; in 1929 Klarmann, Shternov and Von Wowern (3) not only emphasized the strongly reducing effect of organic matter upon the germicidal action of mono-, di- and trihalogenphenols and of some monohalogenalkylphenols, but they showed with the aid of "washed" and "unwashed" test cultures that even the traces of organic matter carried over with the 0.5 cubic centimeter of culture into the five cubic centimeters of the disinfectant dilution would cause a variation of over 100 per cent in the case of such bactericides as 2,4,6-trichlorophenol or 4,6-dichlororesorcinol. Incidentally, certain hypothetical ideas were advanced as to the reasons for the varying degrees of this reducing effect upon the antibacterial action in relation to the chemical structure of the bactericides involved.

Results

BECAUSE of the increasing attention focused recently upon the "high-powered" disinfectants, it was decided to review the pertinent aspects of this subject with particular consideration of the effect of organic matter (as represented by horse serum and citrated horse blood) upon the antibacterial action of several proprietary disinfectants. Table I gives the averages of the minimum germicidal concentrations effective in ten minutes and the phenol coefficients calculated therefrom; table II states the percentages of germicidal activity left respectively in the presence of ten per cent of horse serum and of ten per cent of horse blood. In all tests the F.D.A. technique was employed. The temperature of medication was 20°.

At this point it may be added parenthetically that the use of 10 per cent of horse serum is provided for in the F.D.A. method in order to "simulate practical conditions." The use of 10 per cent of citrated horse blood enjoys no regulatory sanction, but it was selected in this work for supplementary illustrative purposes.

Some comment is in order also with regard to the use of *Staph. aureus* as test organism in addition to *Eb. typhosa*. It is true that the latter germ has been used routinely in disinfectant testing, until very recently. It will be remembered, however, that the official specifications issued on several recent occasions by the Army, the Navy and by other agencies invariably called for performance tests with *Staph. aureus* no doubt in view of the broader uses for which these disinfectants were intended (e. g., for the disinfection of surgical instruments). This is the reason for the inclusion of the tests with *Staph. aureus* in the present study.

The findings in Tables I and II immediately disclose the striking fact that (aside from the chlorine disinfectants whose unfavorable showing in the presence of organic matter has been known and taken into consideration right along) the high-powered, synthetic phenolic bactericides (such as 4-chlorophenylphenol) and the quaternary ammonium compounds suffer the greatest impairment of their antibacterial power in the presence of organic matter. If one considers first the "classical" approach, i. e., the effect on *Eb. typhosa* (against which all disinfectants are tested) one gathers the following:

(1) The "older" types of disinfectant materials, viz., the cresylic, the emulsifiable coal tar and the pine oil types retain between 70 and 95 per cent of their germicidal efficacy in the presence of 10 per cent of horse serum.

(2) The "lower-powered" synthetic phenolic disinfectants (such as those formulated with orthophenylphenol) are comparable in this respect since from 75 to 80 per cent effectiveness is retained by them.

(3) The "higher-powered" synthetic phenolic disinfectants (as represented by one formulated with 4-chlorophenylphenol) suffer a greater loss of germicidal power, only 40 per cent being retained.

(4) The quaternary ammonium compounds are affected to a still greater extent, only 3 per cent of germicidal power being retained in one case, and 15 per cent in another.

As might be expected, the losses caused by the presence of citrated horse blood are greater than those caused by the presence of horse serum; but here again the "older" types of disinfectants give a better account of themselves than the other types. Horse blood appears to impair the germicidal action of the "lower-powered" synthetic phenolic germicides to a greater extent than does horse serum.

The situation is rather analogous in the case of *Staph. aureus;* however, the impairment of the activity of the "high-powered" phenolic disinfectant (containing 4-chlorophenylphenol) by blood is much more pronounced than that of the two quaternary ammonium compounds tested.*

Discussion

IT may be of possible interest to theorize as to the reason for this difference in the functions of the "high-powered" and "low-powered" antibacterial agents. There is good reason to believe that the former materials are distinguished by a greater propensity for adsorption upon particles of organic matter which reduces their availability for action upon the bacterial cells. Coupled with this is the relatively lower number of "active" molecules in the last germicidal dilution of the F.D.A. test, which is present in the case of a more active germicide, than in the case of one of a lesser activity; addition of organic matter with a given number of adsorbent particles will, therefore, inactivate proportionately a greater number of particles in the case of a stronger bactericide than in that of a weaker one. These ideas have been expressed in somewhat greater detail previously (4); those interested in them are referred to this publication.

When looking at this problem from the point of view of the "5 per cent phenol safety factor" referred to in the introductory remarks, one is led to the conclusion that in some instances the maximum implied loss of some 80 per cent of antibacterial activity, as contemplated by the pertinent regulatory requirement concerning the proper use concentration, may not go far enough, in view of the fact that some disinfectants lose substantially more than this percentage in the presence of 10 per cent of serum. There is reason to believe that where the task of disinfection is rendered even more difficult

* Of course it is not intended to imply that pine oil disinfectants are adequate germicidal agents for **Staph. aureus**; nevertheless it is rather noteworthy that their anti-bacterial action suffers but little impairment by organic matter, and that in contrast to the other preparations tested, they are fully as effective in the presence of citrated blood as in its absence; i. e., also more effective in the presence of blood than in that of serum.

TABLE I

Germicidal Activity of Certain Disinfectants in the Presence of Organic Matter

Disinfectant	*EBERTHELLA TYPHOSA*						*STAPHYLOCOCCUS AUREUS*					
	No organic matter added		With 10% of Horse Serum		With 10% of Horse Blood		No organic matter added		With 10% of Horse Serum		With 10% of Horse Blood	
	Effective dilution	Phenol Coefficient	Effective dilution	Phenol Coefficient	Effective dilution	Phenol Coefficient	Effective dilution	Phenol Coefficient	Effective dilution	Phenol Coefficient	Effective dilution	Phenol Coefficient
Phenol	1:90	1.0	1:75	0.9	1:80	0.9	1:60	1.0	1:50	0.8	1:50	0.8
Cresol Compound USP	1:180	2.0	1:140	1.6	1:90	1.0	1:90	1.5	1:60	1.0	1:50	0.8
Cresylic disinfectant (Stated phenol coefficient 5)	1:500	5.5	1:450	5.0	1:300	3.3	1:200	3.3	1:100	1.6	1:90	1.5
Fortified cresylic disinfectant (Stated phenol coefficient 5)	1:500	5.5	1:400	4.4	1:150	1.6	1:250	4.1	1:125	2.0	1:70	1.1
Orthophenylphenol 15% Disinfectant (Saponaceous)	1:600	6.6	1:500	5.5	1:120	1.3	1:200	3.3	1:60	1.0	1:20	0.3
Synthetic phenolic disinfectant (Stated phenol coefficient 10)	1:950	10.5	1:700	7.7	1:150	1.5	1:300	5.0	1:80	1.3	1:35	0.5
4-Chlorophenylphenol 8% Disinfectant	1:500	5.5	1:200	2.2	1:80	0.9	1:700	11.6	1:100	1.6	1:12	0.2
Coal tar disinfectant emulsifiable (Stated phenol coefficient 6)	1:550	6.1	1:400	4.4	1:400	4.4	1:120	2.0	1:100	1.6	1:80	1.3
Pine oil disinfectant (Stated phenol coefficient 4)	1:225	2.5	1:200	2.2	1:250	2.7	1.20	0.3	1:15	0.2	1:20	0.3
Chlorine disinfectant I	1:130	1.4	1:2	0.02	0	0	1:110	1.8	1:1	0.01	0	0
Chlorine disinfectant II	1:600	6.6	1:10	0.1	1:3	0.03	1:400	6.6	1:5	0.08	1:1	0.01
Quaternary ammonium disinfectant I	1:12,000	133	1:400	4.4	1:70	0.8	1:20,000	333	1:5000	83	1:3500	58
Quaternary ammonium disinfectant II	1:27,000	300	1:4500	50	1:3000	33	1:10,000	166	1:8000	133	1:4500	75

by the occurrence of greater quantities of organic matter, the "higher-powered" disinfectants may yield disappointing results.

All of this should not be construed to mean, however, that the familiar cresylic, coal-tar and pine oil disinfectants are still the best for all purposes, and that no worth while progress has been made in this field. On the contrary, the growing importance of the synthetic bactericides with their freedom from objectionable odor and their low toxicity signifies, without doubt a substantial development in the right direction. However, it is the aim of this survey to caution against the rather prevalent idea that a more potent active agent invariably makes a more satisfactory general disinfectant. Instead, when formulating or selecting a new product, due consideration should be given to the probable extent of the loss of power under the practical conditions under which the destruction of bacteria must take place. Thus the use of the "high-powered" germicides may be entirely justified in those cases where power killing organic matter is largely absent, e. g., because of its preceding removal by washing and rinsing; however, where it is present in appreciable quantities a disinfectant containing a "high-powered" active ingredient, and diluted for use according to the "5 per cent phenol" formula, may not be as effective as a disinfectant of lower power which is employed in a correspondingly higher concentration. To express it generally, other things being equal, of two disinfectant dilutions correctly prepared according to the "5 per cent phenol" formula, that derived from a "low-powered" preparation is likely to have more available and reserve potency than that obtained from a "high-powered" product.

TABLE II

Percentages of Germicidal Activity Left in the Presence of Organic Matter.

Disinfectant	*Eberthella typhosa* % Activity in presence of		*Staphylococcus aureus* % Activity in presence of	
	Serum	Blood	Serum	Blood
Phenol	90	90	80	80
Cresol Comp. U.S.P.	80	50	65	50
Cresylic disinfectant (Stated phenol coeff. 5)	90	60	50	45
Fortified cresylic disinfectant (Stated phenol coeff. 5)	80	30	50	25
Orthophenylphenol 15% disinfectant (Saponaceous)	80	20	30	10
Synthetic phenolic disinfectant Stated phenol coeff. 10)	75	15	25	10
4-Chlorophenylphenol 8% disinfectant	40	15	15	2
Coal tar disinfectant emulsifiable (Stated phenol coeff. 6)	70	70	80	65
Pine oil disinfectant (Stated phenol coeff. 4)	90	100	65	100
Chlorine disinfectant I	1.5	0	1	0
Chlorine disinfectant II	1.5	0.5	1.2	0.25
Quaternary ammonium disinfectant (I)	3	0.6	25	15
Quaternary ammonium disinfectant (II)	15	10	80	45

Note

IT would not serve the purpose of this presentation to go into the details of difficulties besetting many bacteriologists in their efforts to obtain definitive and consistent readings with the "high-powered" preparations. But it should be pointed out, in passing, that the present officially approved testing methods for disinfectants do not lend themselves readily for reasonably accurate evaluation of such products. (A possible revision of these methods which would render them more adaptable for this purpose, is under consideration at this time.) Therefore, the pertinent figures given in Table I should not be considered as being of the same definite character as those obtained with the "low-powered" material.

Summary

A SERIES of tests was carried out upon several commercially available disinfectants of the "low-powered" and the "high-powered" variety in order to determine the extent of the impairment by "organic matter" (horse serum and citrated horse blood) of their bactericidal action, on the assumption that the results of such tests would yield an indication of the probable performance under practical conditions of the preparations tested.

It was found that "lower-powered" disinfectants of the coal-tar, cresylic and pine-oil variety, as well as

(*Turn to Page* 135)

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Toxicity Studies on INSECTICIDES

By Doctor Herman A. Shelanski

Smyth Laboratories

THE studies which are carried out in determining the toxicity of a substance depend on the nature of the substance and the use to which the material is to be put. Our recommendations on toxicity tests are an outgrowth of the experience of our laboratories and other interested agencies. While there are at present no laws requiring toxicological data before a product is put on the market in this field, common sense would appear to dictate that the insecticide industry should have standards of its own which would afford protection to the public. Aside from the need to know the toxicity for insects, an insecticide manufacturer should know the relative toxicity of his product for mammals inasmuch as a poison for one type of living tissue presumably has some degree of unfavorable action on other living tissues. In other words, we are dealing with the differential toxicity of these compounds, just as physicians must deal with the differential toxicity of useful drugs.

This paper concerns itself with toxicity studies on insecticides, which during their use may come in contact with food or other materials which may in turn be ingested orally, directly or indirectly. Therefore, it is desirable to determine what the effect of a single large dose of the test material has on the individual. The effect on man, incidentally, is merely inferred from the toxicity on other mammals. Actually it is not proposed that it is desirable to give single large doses of the test material to human subjects. It is obviously desirable, however, to determine the effect of a single large dose of the test material, so that if someone should accidentally swallow a quantity of the material, the effect on the individual might be determined. The material tested may be relatively non-toxic if taken in single large doses. This does not necessarily mean that it is safe for use. We must determine in addition what the effect would be if smaller continued or repeated doses were administered over a reasonable period of time. In the former, it is highly desirable to determine what the acute toxicity of the material is and in the latter, it is desirable to determine what the chronic toxicity or the possible cumulative effect of the material is.

In addition, if the substance is to be used where it comes in contact with the skin of human beings or animals, either directly or indirectly, it then becomes desirable to determine whether this test material is a primary irritant or a sensitizer or both. When a substance is to be used as a spray or vapor or aerosol, it is desirable to do acute and chronic exposure studies with the form to be employed. Such tests should be made in addition to the above-mentioned work. The nature of the test procedure is dependent on the use to which the substance is to be put, the nature of the substance tested, and the conditions under which the substance is to be used.

All of the tests mentioned are carried out primarily on young laboratory animals. At least two species of animals are used in each test, since this is the minimal number of species of animals that one may use for comparative purposes. However the more species of animals used in toxicity tests, the more complete the information obtained as to the toxic nature of the material. The two species of animals used for a particular test again depend on the use to which the substance is to be put, the nature of the substance and the nature of the experiment. Thus for chronic feeding tests and chronic exposure tests to vapor, sprays, or aerosols, white rats and guinea pigs are used; whereas for skin irritation studies, guinea pigs and rabbits are used, and for exposure tests, dogs, cats, and monkeys may be used in addition to or in place of white rats, guinea pigs, and rabbits. In special cases, it is desirable to use animals ranging from paramecia to human beings.

After adequate animal studies have been made, it is desirable to do further studies upon human beings. Such is the case in studying substances for evidences of skin irritation and for irritation to mucous membranes, as in the case of sprays, vapors, and aerosols in which class insecticides are included. In some cases, where the substance has been marketed for human or animal consumption for a long period of time without complaint, the animal work may be ignored and the human work substituted, but this procedure is not encouraged, since more detailed pathological and histological work can be done on animals.

There are no definite standards set by official agencies as to toxicity studies. All of these agencies want evidence of the toxic or non-toxic nature of substances to be marketed for human or animal use or consumption. Therefore, it behooves the laboratory to be in close contact with the official agencies in the matters of scientific approach in regard to many types of toxicity tests. Special uses or applications of a substance or special substances may require toxicity tests which will have to be specially devised.

*Before Natl. Assn. Insecticide & Disinfectant Mfrs., New York, December 7, 1943.

IN making a toxicity study on an insecticide we begin with the acute toxicity study by mouth in animals. In this study we use at least two species of animals, rats and guinea pigs. Equal numbers of males and females are employed. A range finding series is first conducted to find the limits of the material which can be safely fed to the animals. The range of dosages used is based on a logarithmic progression. The doses are so divided that when the study is over, we have one dose in which all of the animals are killed, one dose in which half of the animals are killed, and one dose in which none of the animals are killed. The minimum lethal dose is the dose which will kill one animal out of a group. The dose which kills half the number of animals in a group is the L. D. 50, which is a more or less theoretical value but one which serves as a value for comparative indications.

Approximately 75 rats and 75 guinea pigs are required for this study, or a total of 150 animals are used. All of the animals in this study are kept for an observation period of two weeks preceding the experimental period in order to insure normalcy. This type of study takes approximately five weeks to complete. When the acute toxicity has been determined and we find that from this standpoint the material is relatively toxic, it is questionable whether further studies should be undertaken since we know that small single doses of the material may prove to be fatal. It is only when the material studied is relatively non-toxic from the acute toxicity standpoint that we are justified in continuing with further studies.

When the acute toxicity study has been finished, it is advisable to do sub-acute toxicity studies by mouth. Here also two species of animals, both rats and guinea pigs, are used. Fifty animals of each species, equally divided as to sex, plus ten animals of each species as normal controls, or 60 rats and 60 guinea pigs are used. Each animal is fed an amount of the test material dependent on the acute toxicity of the substance, that is, an amount equal to 25 to 50 per cent of the M. L. D. Blood and urine studies are made at the beginning and the end of the experiment. The animals are kept for an observation period of two weeks. The material is fed directly into the stomach by means of a tube introduced into it. They are fed daily for 30 days. At the end of the experimental period, six animals of each species are autopsied and sections of the liver, kidney, spleen, stomach, and intestine are examined. This study takes approximately eight weeks to ten weeks to complete.

THE next step in the study is the chronic toxicity by mouth. In this study, at least two dosages of the test material are used and the values of these dosages are determined by the results of the acute toxicity study, 1/20 to 1/10 of the M. L. D. and possible also by the most severe probable exposure met with in the manufacture or use of the test material. One hundred rats and 100 guinea pigs, equally divided as to sex, are used for each of the two dosages, while 40 animals of each species are held as controls. Thus a total of 240 rats and 240 guinea pigs are used. Each animal is dosed for a period of six months. The control animals are kept under the same conditions except for the dosing of the actual test material. All animals used in this study are held for an observation period of two weeks before beginning the experimental work.

Five animals of each species for each dosage group are autopsied at the end of each month for six months. Histologic sections are made of the stomach, intestine, liver, kidney, spleen, heart and any other organ which may be indicated. Three control animals in each species are autopsied at the same time and corresponding tissues taken for comparative purposes. Conclusive results as to effect on tissue can be based on no fewer animals, since wherever living organisms are concerned, there are always individual differences in degree of resistance to harmful agents, and enough animals must be used to assure us that the effect observed occurs frequently enough not to be explainable entirely by an inherent high or low resistance on the part of individual animals. It is evident that the control animals are necessary to demonstrate that the general conditions under which the animals have been kept have not been responsible for any effects observable in treated animals. Occasionally some condition such as lung inflammation may be noted in both treated and control animals, which indicates some general respiratory disease, or some parasitic infestation, and not an effect produced by the test material, which might have been so reported had not control animals been used.

Five animals of each species in each dosage group are put aside monthly for evidence of recovery effects if damage is produced. Monthly urine examinations are made on all animals—experimental, recovery, and control animals. Complete blood studies are made on both experimental animals, control animals, and recovery animals, if indicated. These studies are made at the beginning of the experiment, at the end of three months, and at the end of the six months. Monthly weight records are kept as well as complete fertility records.

In the event that the test material proves to be toxic, the animals surviving the six months' exposures are divided into two or three groups, the first group being exposed to a single dosage greater than the M. L. D. previously determined. If they survive this dosage, it is evident that their resistance has been increased through exposure, and a second group is exposed to a still greater dosage in an attempt to determine how greatly the resistance has been increased. If none of them survives the first dosage, a second group is exposed to a lower dosage in an attempt to determine how much the resistance has been lowered by exposure. These tests are not quantitative, however, but merely indicative of the general trend. Each of the animals in this study is fed directly by means of a tube passed through the mouth into the stomach, thus assuring accurate dosage. It costs considerably less to mix the test material with animals' food instead of feeding directly by tube, but we do not approve of the former method of feeding since the animals scatter and hide their food so that measurement of unused food cannot be exact, and we can-

not be sure that all of the food with which the dosage was mixed is taken each day. And even if all the food is taken each day, the appetities of the animals vary; the more voracious animals may consume far more than the average dosage recorded, while the more timid animals consume far less, so that if we have three dosage groups it might well be that many in the middle group are actually getting an amount equal to that recorded for the higher group. Thus the dosage factor is inaccurate and results based on such dosage would not be very conclusive.

We believe the number of animals used in this study is the minimal number necessary for conclusive results in a chronic toxicity study taking eight months which means six months of actual exposure. We feel that this is the minimal length of time necessary for such a study. Longer exposures are even more conclusive, and require more animals. However effects of senility must be avoided. You will note that of the 100 animals of one species in one dosage group, five animals are autopsied each month for six months, or a total of 30 animals. An equal number is set aside for recovery which is another 30 animals. A normal mortality during this period would take approximately another ten animals; leaving 30 animals to cover accidental mortality from respiratory disease which occasionally occurs, or other unpredictable causes, and to take care of the re-exposure resistance groups at the end of the study.

Both sub-acute toxicity tests and chronic toxicity tests to vapor, spray, or aerosol exposures may be run concurrently with the sub-acute and chronic toxicity test by mouth. These tests are the same as those mentioned previously, except that instead of animals being fed measured quantities of material directly into the stomach by means of a tube, the animals in the exposure to sprays, vapors, or aerosols, are subjected to measured concentrations of the spray for four hours per day for 30 days. In the chronic toxicity exposure studies, the animals are subjected to the spray for a period of eight hours daily for six months, but the dosage factor is less in the six months study than in the 30 day study.

WE have now determined the toxicity by mouth and by exposure to spray. The next step is to determine the effect of the material on the skin of animals. In this type of study, guinea pigs and rabbits are used. Twenty-five animals of each species for each dosage are used for skin studies and 25 animals of each species for each dosage for eye irritation studies. In the skin studies, the material to be tested is applied to a clipped area on the backs of the animals. The material is applied every day for a period of 30 days and observations are made daily as to the effect on the skin. In the eye studies, a drop of the material is placed in the eye daily for 30 days. One eye is used, the other eye being used as a control. An adequate group of control animals is kept for this study.

When all of the above tests have been completed and it is concluded that the material throughout this series of tests is relatively non-toxic, we can then go on to the human studies which give us the final answers. We first do skin irritation and sensitivity tests on humans. This study consists of applications of the test material to bilaterally symmetrical areas on the backs of 200 unselected subjects, 100 males and 100 females. The material is placed on patches on the skin on the backs of these individuals and allowed to remain for five days. At the end of this time, the patches are removed and the reactions are noted. Three weeks after the removal of these patches, the material is again patch tested on the backs of these same individuals and removed after a period of 48 hours and the reactions on the back again noted. The first application determines whether the material studied is a primary irritant, and the second application whether the material studied is a sensitizing agent. If the material studied is a primary irritant there is some dilution point at which it is not irritating. The application therefore of a dilution of a primary irritant on second application will indicate whether the substance is also a sensitizing agent in addition to being a primary irritant. This study takes approximately six weeks to complete. There should be present during this study a consultant dermatologist to observe reactions if any are produced. The method described above is according to the standards set by Dr. Louis Schwartz, Director of the Division of Industrial Dermatoses, United States Public Health Service.

If the material does not prove to be too irritating or does not prove to be a sensitizer by these patch tests, then we are further justified in completing the experiment by exposing 200 human subjects, 100 males and 100 females, to the concentration of the material recommended in actual use. This is done by placing groups of not more than 25 individuals in a closed chamber into which has been sprayed the test material. The chamber should be filled with a fog or mist of this material during the exposure of those subjected. The amount of material to which they are subjected should be in excess of actual recommended usage. Each subject stays in this chamber for one-half hour per day for a period of ten days. Three weeks after the last exposure, these same subjects are again put in the chamber and re-exposed for a period of one-half hour per day for three days. This once again is a check as to whether the material studied is a primary irritant or a sensitizer. There should be attendant during these studies a competent dermatologist, a competent otolaryngologist, and a competent internist. Blood and urine studies should be made on a representative group of these 200 subjects.

The work is now completed and we have answered the following questions: How much of the test material can be taken by animals in a single dose safely? How much of the test material can be taken in smaller doses over a period of 30 days, either internally by inhalation or on exposure to skin by animals? How much of the test material can be taken either internally or on exposure to skin daily over a period of six months by animals? We have also answered questions as to whether the material tested is a primary irritant or a sensitizer or both for human skin and we have finally determined how a

(Turn to Page 133)

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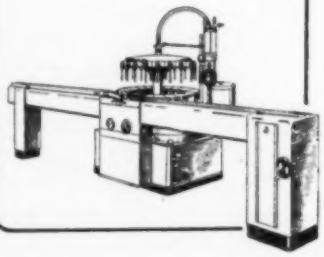

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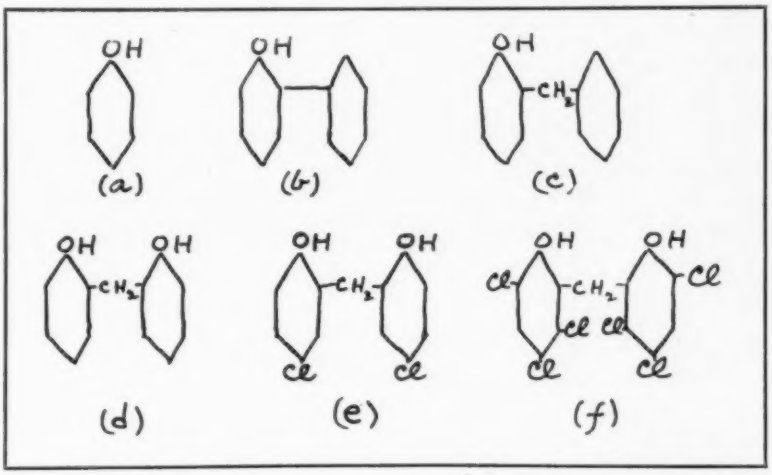
Halogenated Hydroxydiphenyl Methanes as DISINFECTANTS

By Arthur R. Cade*

Givaudan-Delawanna, Inc.

THE halogenated hydroxydiphenyl methanes, as their name implies, are homologues and analogues of phenol and its halogenated derivatives. They might well be considered from a classification standpoint as "the third step removed," with the phenyl-phenols being the first step, the benzyl-phenols the second and these hydroxybenzyl-phenols the third step of this expanding homologous series. Thus structurally you have phenol (a), then the phenyl substituted phenol (b); this followed by the benzyl substituted derivative (c) and then finally the dihydroxydiphenyl methane (d). A wide variety of substitution products are possible as these structural formulae show, with the ortho, meta and para substitutions of the second phenyl or benzyl groups as possible basic variations, and then with further possible variations as to the type of halogen group, where it is attached, and the number of such attached groups present.



These possible compounds, many of which we have prepared and tested, vary widely in their respective germicidal powers. For this discussion I have chosen just two of them which have shown the best possibilities from a practical standpoint. These are, respectively, the 2,2′-dihydroxy-5,5′-dichloro diphenyl methane (e), which we call Compound G-4; and the 2,2′-dihydroxy-3, 5, 6-3′, 5′, 6′-hexachloro diphenyl methane (f), known as Compound G-11. Both are colorless solids of high melting points (176° and 164° respectively), practically odorless, poorly soluble in water, but readily in alcohols and ketones; slightly soluble in mineral oils and hydrocarbon solvents, but soluble in many of the fatty acids and their esters.

Each compound has excellent germ killing powers, varying in degree with the different species of test organisms used, and with the pH of the medium, etc. Compound G-11 is the more active against the gram positive type of organisms as indicated by its action against *Staphylococcus aureus*, while G-4 is more effective against *Eberthella typhi* and other gram negative organisms. Compound G-4 is also very active against *Staphylococcus aureus*, while on the other hand compound G-11 is not very potent against *Eberthella typhi*.

Alkali salts of both compounds are readily prepared,—with G-4 forming both the mono- and di- salts, and G-11 only the mono-. All are soluble in water and possesses high germicidal powers. Phenol coefficient determinations made according to the standard F.D.A. procedure (as outlined in Circular 198) show these two products to have *Staphylococcus aureus* coefficients at 37° C. of 125 ± 25 for G-11 and 118 ± 18 for G-4; while at 20° the data found showed 146 ± 36 and 111 ± 25 respectively. The typhi coefficients for G-4 at 37° C. are 105 ± 15 and 20°, 122 ± 12. G-11 typhi coefficients are low, being around 20 for each temperature. These coefficient figures were determined by dissolving the compounds in water containing approximately 1.2 mols of sodium hydroxide, so they are really those of the sodium salt thus formed.

It will be noted that these figures are presented as a range rather than being expressed in the form of a definite integral number as is usually done. The reason for this will be readily apparent to anyone who has had the problem of determining phenol coefficients of compounds of these types (i. e. phenyl phenols, benzyl phenols, and other similar slow-acting germi-

*Before Natl. Assn. Insecticide & Disinfectant Mfrs., New York, December 7, 1943.

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cides such as the mercury compounds and many of the quaternary ammonium derivatives). The inability to get consistent check results with such germicides has been common experience with all workers in this field, much to their sorrow. Thus these figures show the range of results which the speaker has obtained by running a large series of duplicate check experiments, wherein are given the killing strength required by the test criterion (i. e., the disinfectant dilution that does not kill all test organisms in five minutes but does in 10 minutes) which will be used as the numerator for calculating the phenol coefficient figure.

THESE wide variations in test data, as found by one worker in his own check experiments, as well as those obtained when several different laboratories test the same solution, emphasize the necessity for making a critical examination of the phenol coefficient method as now used, in order to determine the why of this undesirable phenomenon and to correct the test procedures now used so that more reliability can be placed on results obtained. The writer has been making such a study for some time, but unfortunately has not yet found the answer. A brief resume of findings and conclusions I have drawn to date from this work follows.

Take, for example, the coefficient figure as just presented for Compound G-11 at 20° as being 146 ± 36. Actual test results show that as low as 1-7000 and as high as 1-11,000 as the determining dilution were found in different tests following the same procedure and having the test-organism of proper standard strength (thus a range in coefficient from 110 (7000/60) to 182 (11000/60) is obtained. A similar range in findings was noted for example with the 37° tests which also show a difference of 4,000 namely 1-9000 and 1-13000 for G-11 as the dilution that meets the test requirement; but since the control phenol solution at 20° is a much smaller figure than the one at 37° (i. e. 1-60 instead of 1-90) the actual figures calculated come out less, namely for this phenol coefficient 125 ± 25. The range of error is approximately the same in each case. This carries on through with the other compounds and other types of slow-acting germicidal substances used for disinfectant purposes.

The reason for this range in data findings is due in part to the specific property which these compounds possess, that is of having a very high dilution coefficient,—a most useful property for disinfectants from the standpoint of safety in use, allowing for errors in dilution without serious loss in the germ killing powers, but an annoying obstacle in the way of getting specific numerical phenol coefficient figures for a definite strength solution being tested.

AS to the other factors which contribute to making these variations, I can only venture a guess at the present time, as I do not have sufficient experimental evidence at hand to prove these points. However, in the light of the work which I have done in studying and developing germicidal testing techniques over the past ten years, I believe that another one of the answers will be found in what was discussed in a paper published by the writer in 1937[1] to explain somewhat similar, though less extensive, differences in the variations obtained in phenol resistance of the standard test-organism, namely the "random sampling error." Although this is not the entire answer, I do believe that it plays a part as follows.

If the Cade-Halvorson[2] modification of the F.D.A. technique is used instead of the standard procedure, wherein plate counts are made at the same time that subculture tubes to broth are taken, it will be found that dilutions which produce negative results in tubes do not correlate with the dilutions that produce no colony formations in the agar plates. This is true even though the same size loopful is taken from the test dilution within 15 seconds of each other for the two subtransfers (i. e. one to broth and the other to a tube of agar and plated). Under such test conditions one finds the broth tubes do not show growth until a dilution of say 1-9000 is reached, while the agar plates begin to show counts at 1-4000, and will show rather high counts of several hundred to over a thousand at the point where the broth tubes change from negative to positive.

This effect is not due entirely to bacteriostasis, although unquestionably the latter also plays a role in these tests. The dilution method for checking bacteriostasis does not suffice to catch this error. This perhaps is because of the nature of the reaction between the germicide and the bacterial cell. There are many ways that germicidal action can be brought about and with these slow-acting substances the method of attacking the cell is no doubt different from that which occurs with the faster acting materials.

For example, with humans, a quick acting reaction such as a blow to cause a skull fracture, pressure on the throat so as to stop breathing, or a puncture of the heart will cause rather quick death; whereas a surface burn over a large area of the body or the destruction of a part of some internal organ such as the kidneys through the ingestion of some poisonous material (e. g. mercury), etc. might cause a slow death. In the former case the organism is dead in short order. In the latter case it is possible, if the organism as a whole can carry on while repair is made, that replacements may come in time to save the organism and the patient will eventually recover. Whether he dies or lives depends upon how he is able to hold up and repair during the readjustment period.

The same possibly is true with the fast acting and the slow acting germicides. Thus with the latter, in some cases they are able to recover and in other cases not. It should be remembered that the F.D.A. test procedure is such that although you remove the loopful from the test dilution after the five and the ten minute intervals, nevertheless, the organisms which you do remove you place in a suitable environment and give them a chance to

[1] Cade, A. R.—"The Random Sapling Error as a Possible Answer to the Apparent Variations in Antiseptic Test Data." *Jour. Amer. Pharm. Assoc.* Vol. XXVI, No. 12, Dec. 1937, p.1233-1240.

[2] Cade, A. R. and Halvorson, H. O.—"The Synergistic Action of Soaps on the Germicidal Efficiency of Alkalies." *SOAP*, 1934, Vol. 10, No. 8, pg. 17 and No. 9, pg. 25.

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recover. Some will do so and some will not, depending upon the media, its components and especially upon the resistance of the organisms carried over, the extent to which they have been damaged, and their capacity to hold out until recovery is made. Thus if you get a positive tube you know you carried over viable bacteria, but if you get a negative subculture tube you do not know whether you had living organisms in that loopful or not. Maybe, and very likely as the data presented above shows, you did carry over quite a few organisms in the loopful. These grew in the agar but did not in the broth because the medium differed. In one case it was favorable to recovery, in the other case it was not.

Other data on other experiments which I can not discuss here tend to substantiate these facts quite conclusively. Please note that the random sampling error plays its role in this phenomenon. That error is the one produced by the fact that according to the laws of chance you can have as many as 69 organisms per cc. in a solution and when you withdraw a loopful from it you have a 50-50 chance that you will not carry over even one organism; together with a lesser chance that you will carry over enough organisms in case they have been affected by slow-acting germicides to even permit one to survive and grow during the 24-hour incubation period and thereby produce a positive tube. So much for a brief suggestion of a possible explanation of what is going on here. The results of other work in progress along these lines is being prepared for publication with the hope that it may present further light on this disinfectant testing problem. Studies using antidotes to remove the germicide from the bacterial cell before it has had a chance to make sufficient changes in the normal metabolism of the organism to cause it to be irrecoverable are also being made, which it is hoped will give added useful information.

In conclusion, to return to the basic subject—namely "the use of halogenated dihydroxy-diphenyl methanes as disinfectants" — we believe that Compound G-4 is especially suitable for that purpose. This is true in spite of the difficulties which arise relative to correctly evaluating these various phenyl-phenols and their substituted derivatives. These difficulties are common to all and this includes mercury and quaternary ammonium compounds.

Compound G-4 being relatively non-toxic, for most people non-irritating to the human skin, and practically odorless, these factors, together with its high coefficient value make it of added interest in connection with the compounding of household type of disinfectants.

—— • ——

Athlete's Foot Treatment

A solution of definite worth in treating chronic stages of athlete's foot, known as Fraser's solution, is given in the military "Manual of Dermatology" as follows:

	Parts
Salicylic acid	2
Benzoic acid	2
Tincture of iodine	10
Spirits of camphor, to make	60

In rather irritable conditions where there is considerable itching, the following ointment may be of value:

Liquefied phenol	1 cc.
Zinc oxide	6 gms.
Pine tar ointment	12 gms.
Rose water ointment	18 gms.

This is applied twice daily. When the eruptions begin to subside and all cracks have sealed, the following, also applied twice daily, should give excellent results:

	cc.
Tincture of iodine	4
Spirits of camphor, to make	30

The U. S. Navy is reported to be using Prehn's foot powder, described in an article in the J. of the Am. Medical Association in 1938, which has the formula:

	Parts
Salicylic acid	5
Menthol	2
Camphor	8
Boric acid	50
Starch	35

In preparing the powder it is essential that the menthol and camphor be mixed separately to avoid liquefaction, and that the starch be very dry. However, some authorities have expressed the opinion that foot powders containing as much as 3 per cent of salicylic acid may be harmful for soldiers' use because the acid adds to the macerating action of the perspiration and causes loss of epithelium, thus defeating its purpose. A powder which is believed to be serviceable without doing this contains:

	Parts
Thymol	1
Boric acid	10
Zinc oxide	20
Purified talc, to make	100

Ten per cent or less of tannic acid is incorporated in some of the foot powders which are designed to be both fungicidal and to counteract excess perspiration. M. A. Lesser. *Drug & Cosmetic Ind.* 53, 272-4, 277, 332-5 (1943).

—— • ——

Pyrethrum Aerosol

Tests with a proprietary pyrethrum aerosol consisting of pyrethrins 1 per cent, sesame oil 2, and dichlorodifluoromethane 97 per cent, indicated that the aerosol can be used at rates of 2-12 ounces per 1000 cubic feet to control adult Indian meal moths flying in storage places, but not for different stages of the insect when penetration of web, grain or other material is necessitated. At the rate of 1 pound per 4000 cubic feet the spray is highly effective against the German cockroach in heavily infested rooms. H. A. Z. Monro. Ann. Rept. Entomol. Soc. Ontario 73, 61-3; through Chem. Abs.

—— • ——

New Fumigant Patents

A fumigant consists of a monosubstitute acetonitrile having a boiling point less than 200°C., such as di-N-methyl glycinonitrile. A fumigant may also consist of a composition containing a toxic amount of a halogen-substituted acetonitrile such as chloroacetonitrile. Wm. Moore, to Am. Cyanamid Co. Canadian Patents 414,667 and 414,672.

—— • ——

Disinfectant Compound

Details are given for the production of quaternary ammonium compounds having bactericidal and fungicidal properties, such as *para*-nitrobenzyl-dimethyl-ammonium chloride-*N*-acetyl-dodecylamide. Several similar compounds are described. They may be used in gargles or toothpastes, and generally as disinfectants and antiseptics. F. Leuchs, to Winthrop Chemical Co. U. S. Patent No. 2,317,999.

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Activated Pyrethrum MOSQUITO SPRAY

By E. R. McGovran and J. H. Fales

Bureau of Entomology & Plant Quarantine
A. R. A., U. S. Dept. of Agriculture

THE use of activators for pyrethrum in fly sprays has increased the lethal effect of these sprays against the housefly to a marked degree. The present demand for sprays to control disease-carrying mosquitoes has raised the question as to the effectiveness of these activators when combined with pyrethrum and used against these pests. Two of these activators that have been used extensively are sesame oil (Eagleson 1942) and isobutylundecyleneamide (Weed 1938). Tests were made with these two materials to determine their effect on mosquitoes when added to pyrethrum-kerosene sprays.

Methods and Materials

Three- to six-day-old adult mosquitoes, *Aedes aegypti* (L.), were used as the test insects. The mosquitoes were fed a solution of 10 per cent sugar in water up until the time of the test. The stock cage was opened in a Peet-Grady chamber and approximately 100 mosquitoes of both sexes were released. The chamber was closed and 6 ml. of spray was applied with a Peet-Grady atomizer through four of the eight holes in the chamber. One hole in each corner was used. The temperature was 86° F. After five minutes the ports were opened and the exhaust blower was started. Fifteen minutes after the start of the test the "up" and "down" mosquitoes were collected with a gentle-flow suction apparatus so that it was not necessary to handle the mosquitoes with the fingers or forceps. A black cloth about three feet square, mounted on corrugated paper board, facilitated the collection of the "up" mosquitoes, as many would alight on it and could be easily caught. The procedure was similar to that of the Peet-Grady method except that the volume of insecticide used and the time before ventilation of the chamber was started were cut in half and mosquitoes were used instead of houseflies. The walls and ceiling of the chamber were washed and the paper on the floor changed as in the Peet-Grady test. Both the "up" and "down" mosquitoes collected from each test were placed in a screen recovery cage and fed sugar and water. The insects were held at 80° F., or slightly above, and 70 per cent or more relative humidity both before and after treatment.

The number of mosquitoes that were "down" 15 minutes after the spray was applied were counted. Both male and female mosquitoes were included in these counts but the mortality figures are based on adult females. In counts made on 12 days the percentage of females ranged from 22 to 49. Mortality counts were made from 16 to 24 hours after the insects were treated.

Results

Preliminary tests had shown that 6 ml. of deodorized kerosene did not cause any mortality of the mosquitoes. In five tests sesame oil at 3.3 mg./ml. and 45.8 mg./ml. of spray caused from 1 to 2 per cent mortality of three- to six-day-old adult female *Aedes aegypti*. Isobutylundecyleneamide at 0.22 mg./ml. and 4.4 mg./ml. caused 8 to 12 per cent mortality. The results with pyrethrins and with their combinations with activators are given in table 1. All the sprays containing pyrethrum caused a high knock-down but the sprays without pyrethrum gave no or a low knock-down.

Observations of the comparative resistance of male and female *Aedes aegypti* showed that the female mosquitoes were the more resistant. In general the pyrethrum sprays killed about one-third more males than females.

Table 1.—Mortality of adult female mosquitoes, *Aedes aegypti*, treated with deodorized kerosene sprays in a Peet-Grady chamber.[1]

SERIES I

Material added to deodorized kerosene	*Concentration, Mg./ml.*	*Per cent mortality*
Pyrethrins	0.033	54
Pyrethrins	.066	92
Pyrethrins + Isobutylundecyleneamide	.033 + .19	62
Pyrethrins + Sesame oil	.033 + 3.0	76
Least significant difference at odds of 19 to 1		12.7

[1] Each mortality figure is based on six tests averaging 49 insects per test.

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SERIES II

Pyrethrins	.033	58
Pyrethrins	.066	82
Pyrethrins	.033	79
Isobutylundecyleneamide	4.4	
Pyrethrins	.033	
Sesame oil	45.8	70
Least significant difference at odds of 19 to 1'.....		12.6

Discussion

Sesame oil used alone in deodorized kerosene was found to be practically nontoxic to mosquitoes but when combined with pyrethrins it caused a distinct rise in mortality. The concentrations of isobutylundecyleneamide tested, when used alone in kerosene, were slightly toxic to the mosquitoes. When combined with pyrethrum, this material also caused a distinct rise in toxicity. Neither activator increased the toxicity of the spray as much as did doubling the pyrethrins content, but the higher concentration of isobutylundecyleneamide approached that degree of toxicity. These two activators of pyrethrum were found to be less effective in activating the pyrethrins against the mosquito *Aedes aegypti* than they have been reported against the housefly, *Musca domestica* L. However, as most sprays of this type are often used to control both houseflies and mosquitoes, the greater activating effect will be utilized for adequate control of the former, which is much more resistant to pyrethrum than this species of mosquito.

On the basis of 1,000 cubic feet the dosage of spray used in these tests was 27.8 ml., which is slightly less than a U. S. fluid ounce. Eighty-seven per cent of the mosquitoes were killed when this volume of spray contained a total of 1.8 mg. of pyrethrins. In other words, on a 1,000-cubic-foot basis 1.8 mg. of pyrethrins in 27.8 ml. of deodorized kerosene spray was an LD 87[1] to adult female *Aedes aegypti*.

Summary

Tests on adult mosquitoes, *Aedes aegypti* (L.), in which the Peet-Grady-method equipment was used showed that the adult females of this species are killed by very low concentrations of pyrethrins in oil sprays. Sesame oil and normal isobutylundecyleneamide when added to these low concentrations of pyrethrins in kerosene sprays increased their effectiveness against mosquitoes but to a much less degree than has been reported on houseflies.

[1] "LD 87" is the dose required to kill 87 per cent of the test insects. Holck and Mathieson (1942) discuss the use of LD in the dosage of drugs for rats.

References

Eagleson, C. 1942. Sesame in insecticides. Soap & Sanitary Chem. 18 (12): 125, 127.

Holck, H. G. O., and Mathieson, D. R. 1942. Dosage of drugs for rats. *In* The rat in laboratory investigations, pp. 297-350. (Philadelphia, Montreal, and London.)

Weed, A. 1938. New insecticide compound. Soap 14 (6): 133, 135.

Toxic Organic Compounds

The median lethal dose to houseflies for *ortho*-allylphenol was 18.5 per cent, 10.5 per cent for 2, 6-diallylphenol, and 2.63 per cent for 2, 4, 6-triallylphenol. The median lethal doses of *gamma*-thiocyanopropyl- and *beta*-thiocyano ethyl phenol ethers were between 0.6 and 1.33 per cent; these had a rapid paralyzing effect. The *gamma*-thiocyano propyl ether of 1, 3, 5-xylenol was found to be an excellent toxicant for use in household fly sprays because of its high toxicity and its rapid paralyzing effect, with a median lethal dose of 0.79 per cent. It does not exhibit any objectionable odor. E. K. Harvill and J. M. Arthur. Contrib. Boyce Thompson Inst. 13, 79-86 (1943).

Piperine for Houseflies

Piperine, the alkaloid found in the dried fruit of black pepper, killed 75.0 per cent of houseflies in a Peet-Grady test at 0.10 per cent, while the pyrethrins under the same conditions killed 51.1 per cent. Sprays containing 0.05 per cent of piperine and 0.01 per cent of pyrethrins were more toxic than pyrethrins alone at 0.1 per cent. Introducing a methylene dioxyphenyl group into various substituted amides increased their effectiveness. Amides of piperic acid were more effective than the amides of cinnamenylacrylic acid, in increasing the toxicity of pyrethrum solutions. Lengthening the side chain attached to the methylene dioxyphenyl group increased the effectiveness of the amide. Piperine was more effective than the piperidide of 3, 4-methylene dioxybenzoic acid in increasing the toxicity of pyrethrum solutions. E. K. Harvill, A. Hartzell and J. M. Arthur. Contrib. Boyce Thompson Inst. 13, 87- 91 (1943).

Pyrethrum in Disinfestation

Pyrethrum has been put into an ointment for delousing purposes, states Medical Letter No. 18 of the Am. Medical Association. It is said to be highly effective in eradicating both the lice and their eggs without causing any skin trouble to the user or staining clothing permanently. It need stay on the body for only 15 minutes, and can then easily be washed off with soap and water. *Manufacturing Chemist* 14, 289 (1943).

Fighting Warehouse Insects

Laboratory and warehouse experiments indicate that ethyl formate is a good insecticide. The concentration of ethyl formate required for the destruction of all kinds of warehouse insects is up to 0.25 gram per liter. Owing to the low cost of the raw material and its simple preparation, it is recommended for use against insects. N. D. Pelikh, V. A. Ostapenko and N. S. Shkandina. *Khim. Referat. Zhur.* 4, No. 4, 89; through Chem. Abs.

Stabilizing Pyrethrum

The natural deterioration of the extract of pyrethrum in kerosene for use as an insecticide, can be arrested by incorporating in the extract an antioxidant of the phenol class such as hydroquinone or pyrogallol, dissolved in a higher-boiling ketone, a terpene alcohol or an ester of a terpene alcohol. Stafford, Allen & Sons, Ltd., and T. F. West. British Patent No. 547,927.

Air Disinfectants

Ordinary disinfectants had no or little bactericidal action when used as aerosols. Quinosol, lactic acid, Septex, salicylic acid and hydrogen peroxide had good disinfecting action as aerosols. H. Kliewe and E. Fruchte. Z. *Hyg. Infektionskrankh.* 124, 480-7; through Chem. Abs.

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PYRETHRUM SYNERGISTS...

Toxicity to houseflies of certain N-substituted piperonylamides and benzamides combined with pyrethrins in oil base insect sprays

By W. A. Gersdorff and S. I. Gertler

Bureau of Entomology and Plant Quarantine
Agricultural Research Administration, U. S. D. A.

IN previous work seeking a synergist for pyrethrum in fly sprays, it was found that certain N-substituted piperonylamides (Gertler et al. 1943a) and benzamides (Gertler et al. 1943b) exhibited synergistic action when used in combination with pyrethrum solutions. In addition the piperonylamides, in contrast to the benzamides, were found to be toxic to houseflies when used alone at a concentration of 10 mg. per milliliter. Some of these compounds were chosen for a study of relative effectiveness, and the results are given in this paper.

Materials

N-isobutylpiperonylamide, N-butylpiperonylamide, and N,N-diethylpiperonylamide were selected from the first group. N-butylbenzamide and N,N-dibutylbenzamide were selected from the second group.

Procedure

These compounds were dissolved in acetone and refined kerosene was added until it was 90 per cent of the total volume. The concentrations used were selected in accordance with the results of the preliminary tests (Gertler et al. 1943a, 1943b) and, in addition to the amide, each test solution contained 0.5 mg. of pyrethrins per milliliter.

The tests were made on adult houseflies, *Musca domestica* L., by the turntable method. Knockdown and mortality percentages were determined on six replicates made on separate days with approximately 150 flies to each test. For standards of comparison solutions of pyrethrins in refined kerosene were tested at concentrations of 1 and 2 mg. per milliliter. Duplicate tests of the pyrethrin solutions were made each day except with the higher concentration on the last three days, when only single tests were made.

Results

The toxicity data are summarized in table 1. The mortality percentages are based on one-day counts. The knockdown in 10 minutes was 100 per cent in all tests.

To show the effect of different concentrations and also to illustrate

Table 1.—Toxicity to houseflies of sprays containing certain N-substituted piperonylamides and benzamides mixed with 0.5 mg. of pyrethrins per milliliter

Compound	*Concentration*	*Mean mortality*	*Concentration giving 50% kill*
	Mg. per ml.	*Per cent*	*Mg. per ml.*
N-isobutylpiperonylamide	1	24	2.3
	2	43	
	4	79	
N-butylpiperonylamide	1	28	2.0
	2	49	
	4	85	
N,N-diethylpiperonylamide	1	29	1.6
	2	63	
	4	92	
N-butylbenzamide	5	14	>30
	10	16	
	20	26	
N,N-dibutylbenzamide	5	14	16
	10	25	
	20	62	
Pyrethrins	0.5[1]	18	1.9[1]
	1.5[1]	40	

[1] Not including the 0.5 mg. per ml. mentioned in the table heading.

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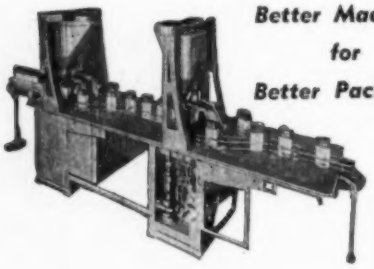

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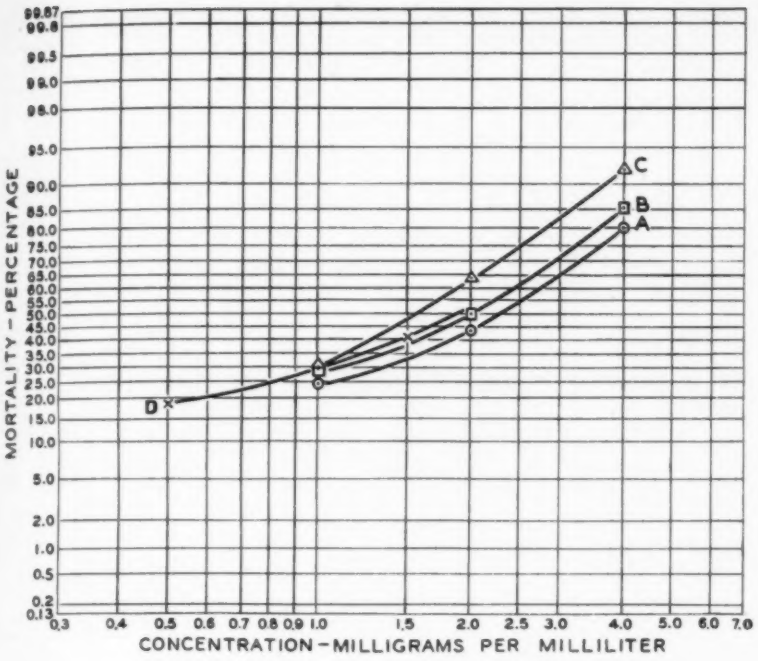

Fig. 1.—Concentration-mortality curves for mixtures of piperonylamides with pyrethrins. (A)—N-isobutyl piperonylamide; (B)—N-butyl piperonylamide; (C)—N,N-diethyl piperonylamide; (D)—Pyrethrins. Concentrations are in addition to 0.5 mg. of pyrethrins per ml. included in all sprays.

the method of estimating the concentrations giving a 50 per cent kill, the mean results for the piperonylamides and pyrethrins are plotted on log-probability paper in figure 1.

Discussion

Analysis of variance of the results for the three piperonylamides shows the N,N-diethyl compound to be significantly more effective than the other two. When these compounds are compared with the pyrethrins, however, significant differences are lost. Therefore, when used in sprays containing 0.5 mg. of pyrethrins per milliliter, these three compounds are about equivalent to pyrethrins, although the diethyl compound is at the margin of significance in superiority. Because of the unfortunately high resistance of the flies used in the tests, the estimation of the amount of pyrethrins giving 50 per cent kill was slightly extrapolative.

N,N-dibutylbenzamide obviously was much more effective than N-butylbenzamide but much less effective than the piperonylamides.

At 4 mg. per milliliter the three piperonylamides, when mixed with 0.5 mg. of pyrethrins per milliliter, each gave a spray which caused a much higher mortality of houseflies than 2 mg. of pyrethrins, and at 2 mg. per milliliter these amides under the same conditions gave sprays equal to or better than the same concentration of pyrethrins.

Literature Cited

Gertler, S. I., J. H. Fales, and H. L. Haller. 1943a. Fly spray kill. A study of the synergistic action of N-substituted piperonylamides when incorporated in pyrethrum fly sprays. Soap & Sanitary Chemicals 19 (4): 105, 107.

Gertler, S. I., J. H. Fales, and H. L. Haller. 1943b. Study new synergists. Soap & Sanitary Chemicals 19 (5): 111.

NAIDM REGISTRATION

(*From Page* 121)

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W. O. Buettner, Secretary, National Pest Control Ass'n
A. W. M. Carter, Director of Pesticides, The Wartime Prices and Trade Board, Ottawa, Canada
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TRADE NEWS . . .

New Chemical Supply Offices

Chemical Supply Co., Cleveland, has moved its main offices to the Plymouth Building in that city, according to an announcement by Henry A. Nelson, president of the company. The offices were formerly located in the company factory at 2450 Canal Road, Cleveland. The plant will continue to be located at this address where it has been since the founding of the company in 1898. J. M. Williams, vice-president of Chemical Supply in charge of production, will still make his headquarters at the Canal Road address of the plant. A. E. Nicholls is secretary-treasurer of the firm. Several persons have been added to the staff at the new Plymouth Building offices.

Oppose Coloration Law

The Pacific Insecticide Institute in a recent bulletin has gone on record as opposing what they describe as "hasty enactment of the presently proposed amendment" to the Insecticide Act of 1910, providing for mandatory coloration of poisonous white insecticides. As an alternative to enactment of the proposed amendment it is suggested that the subject be re-opened by appointment of a committee of all interested parties to study the problem. The Institute expresses the fear that enactment of the proposed control in its present form might interfere seriously with supplies of agricultural insecticides.

Dr. Tuma Joins Buckingham

Dr. Vladimir Tuma, in charge of the research and testing laboratory of S. H. Kress & Co., New York, chain store operators, for the past 12 years, and a well-known writer on sanitary products subjects, has just joined Buckingham Wax Corp., L. I. City, N. Y., as technical director. Dr. Tuma is a graduate of the Case School of Applied Science in Cleveland, and has taken numerous advanced degrees at other schools. He is a member of the American Chemical Society, The American Society for Testing Materials, the New York Academy of Science, American Institute of Chemists, American Assn.

DR. VLADIMIR TUMA

of Textile Technologists, and the New York Microscopical Society. His company connections before he joined the Kress organization included three years with Kaumagraph Co., five years with U. S. Rubber Co. and one year with B. F. Goodrich Co.

Du Pont DDT Plant

Construction of a new half-million dollar plant by Du Pont, Wilmington, Del., for the manufacture of the new synthetic insecticide, DDT, used by the armed forces against lice and other insects, was announced Jan. 20. Du Pont's Graselli Chemicals Division is licensed to manufacture and sell DDT by Geigy & Co., New York, whose parent Swiss company, Geigy, Inc., developed the insecticide in 1939. A difficult compound to make, DDT, or dichloro-diphenyl-trichloroethane, is such an effective insecticide that the Army recently flew the first 500 pound cargo produced at a Du Pont pilot plant to an overseas front. Tonnage manufacture at the new plant will be devoted entirely to Army and Navy use. Work on the new plant is expected to start quite soon. DDT's potency is said to be such that a single application dusted on clothing gives protection from disease-carrying vermin for one month. The chemical was first synthesized 70 years ago by a German chemist but its use as an insecticide was patented in 1939. Previously employed largely as a moth repellent and a plant lice control, the U. S. Dept. of Agriculture revealed last May that its scientists had successfully tested its utility against body lice. The Army soon recommended its adoption as standard equipment, replacing the louse powder then in use.

Lieut. John Lawson Killed

Lieut. (j. g.) John Harry Lawson, Jr., 22-year-old navy flyer and a son of J. H. Lawson, president of Federal Varnish Co., Chicago, was killed in a plane crash in the Atlantic area of operations early last month. Lieut. Lawson was a student at Dartmouth College when he enlisted in the Navy in September, 1941. Following completion of his training, he had been on active duty in the Pacific area for four months, subsequently being transferred back to the Atlantic area. Besides his father and mother, he is survived by a brother, Richard, 16 years old, a student at Western Military Academy, Alton, Ill. J. H. Lawson, Sr., has many friends among firms in the sanitary products field, and is a regular attendant at all meetings of the National Association of Insecticide & Disinfectant Manufacturers.

Conley Hollingshead Ad Head

Russell E. Conley has just been appointed advertising manager of the "Whiz" Industrial Divisions of R. M. Hollingshead, Corp., Camden, N. J., in addition to being advertising manager of the Hollingshead line of "Whiz" automative products, it was announced recently. Mr. Conley joined R. M. Hollingshead Corp. in 1939 as assistant advertising manager, and assumed advertising managership of the "Whiz" automative division in 1943. After majoring in marketing and merchandising at the University of Pennsylvania, Mr. Conley was a salesman with Reed Brothers, Camden, from 1935 to 1939, prior to joining Hollingshead.

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Appoints N.A.I.D.M. Committees

STANDING and special committees for 1944 have been announced by Henry A. Nelson, president of the National Association of Insecticide & Disinfectant Manufacturers, as follows:

Legislative Committee

Chairman: W. J. Zick, Stanco, Inc.; C. L. Fardwell, McCormick & Co.; J. L. Brenn, Huntington Laboratories Inc.

Membership Committee

Chairman: J. W. Schiffer, Federal Sanitation Co.; Henry Frazin, Central Can Co.

Post-War Planning Committee

Chairman: Melvin Fuld, Fuld Bros.; R. W. Stoddard, Dodge & Olcott Co.; H. M. Clark, Dr. Hess & Clark; R. O. Cowin, Standard Oil Co. (Ohio); Paul Mayfield, Hercules Powder Co.; J. H. Carpenter, Koppers Co. — Tar and Chemical Div.; Harold Noble, S. B. Penick & Co.

Executive Committee

Chairman: Ira P. MacNair, MacNair-Dorland Co.; John Powell, John Powell & Co.; C. L. Weirich, C. B. Dolge Co.; W. J. Zick, Stnco, Inc.; H. W. Hamilton, White Tar Division, Koppers Co.

Associate Members Committee

Chairman: A. L. van Ameringen, van Ameringen-Haebler, Inc.; L. J. LaCava, Continental Can Co.; M. Lemmermeyer, Aromatic Products, Inc.; J. B. Magnus, Magnus, Mabee & Reynard, Inc.

Public Purchases Committee

Chairman: J. L. Brenn, Huntington Laboratories Inc.; J. H. Bender, Clarkson Chemical Co.; L. J. Sayer, Puritan Chemical Co.

Disinfectant Scientific Committee

Chairman: C. L. Weirich, C. B. Dolge Co.; M. B. Turner, Dow Chemical Co.; E. G. Klarmann, Lehn & Fink Products Co.; Arthur Cade, Givaudan-Delawanna, Inc.; Jack C. Varley, Baird & McGuire, Inc.; G. F. Reddish, Lambert Pharmacal Co.; J. N. Roche, Koppers Co.; Frank U. Rapp, Hercules Powder Co.; P. G. Bartlett, Rohm & Haas Co.; B. G. Philbrick, Skinner & Sherman, Inc.; W. A. Hadfield, Pennsylvania Salt Co.; W. H. Sachs, Puritan Chemical Co.; John Fleming, Monsanto Chemical Co.

Disinfectant Marketing Committee

Chairman: L. H. Gerson, Hunt Mfg. Co.; C. E. Timson, Wm. Cooper & Nephews, Inc.; Paul L. Robbins, Geo. B. Robbins Disinfectant Co.; W. B. Eddy, Rochester Germicide Co.; A. Fabry, American Disinfectant Co.; L. B. Joel, Selig Co.; John A. Marcuse, West Disinfecting Co.

Insecticide Scientific Committee

Chairman: Frank C. Nelson, Stanco, Inc.; *Vice Chairman*: F. W. Fletcher, (Mothproofing Investigations), Dow Chemical Co.; *Vice Chairman*: C. R. Cleveland, (Cattle Sprays), Standard Oil Co. (Indiana); *Vice Chairman*: A. E. Badertscher, (Powder Insecticides), McCormick & Co.; W. A. Simanton, Gulf Research & Development Corp.; D. F. Murphy, Rohm & Haas Co.; Alfred Weed, John Powell & Co.; A. G. Grady, Sinclair Refining Co.; G. A. Bowden, A. S. Boyle Co.; Victor Froelicher, Geigy & Co., Inc.; A. H. Goddin, duPont Pest Control Laboratory; P. D. Harwood, Dr. Hess & Clark, Inc.; Friar Thompson, Jr., Hercules Powder Co.; C. E. Smith, Socony-Vacuum Oil Co.

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Johnson Post-War Plan

A post-war planning program to create additional jobs for returning veterans after the war was announced recently by Herbert F. Johnson, Jr., president of S. C. Johnson & Son, Inc., makers of floor waxes, Racine, Wisconsin.

"In our post-war planning," Mr. Johnson said, "the objective I have set up and have firmly fixed in my mind is to make as many jobs available after the war as I possibly can. These jobs will not only be for those who left the company to serve their country, but also as many new jobs as possible." The year 1943 was the twenty-seventh year in which the Johnson profit sharing bonus plan has been in operation. Bonus checks went to all factory and office employes, members of the sales and branch house organization, and men and women now in service who were formerly associated with the company.

N.A.I.D.M. MEETS JUNE 12-13

The 30th annual mid-year meeting of the National Association of Insecticide & Disinfectant Manufacturers will be held at the Edgewater Beach Hotel Chicago, on June 12 and 13. Meetings of scientific committees and the Board of Governors will be held at the same place on June 11. A quarterly meeting of the Board will be held at the Hotel Roosevelt, New York, on March 9.

Hollingshead V.P. Dies

Robert Marshall Bagley, 65, executive vice-president of R. M. Hollingshead Corp., manufacturers of waxes and polishes, Camden, N. J., died of a heart attack Jan. 16, at his home in Haddonfield, N. J. He had been associated with Hollingshead for 41 years and was a native of Virginia. Surviving are his wife, Mrs. Madelaine Stump Bagley; a daughter, Barbara Ann; a brother, Thomas J. Bagley of Haddonfield, who is in charge of research for Hollingshead, and two sisters, Mrs. Grover C. McGeehee of Lynchburg, Va., and Mrs. Jethro Irvy of Blackstone, Va.

Velsicol at Farm Convention

Velsicol Corp., Chicago, participated last month in the Chicago convention of the National Council of Farmer Cooperatives, where Stephen Otis and Edward Depres of the sales department made a special presentation of the company's new "AR-60" insecticide material for use in compounding cattle sprays.

Felton Opens Mexico Branch

Felton Chemical Co., Brooklyn, recently opened a branch office in Mexico City, and placed J. Alvardo Lang, a chemical engineer of the National University, Mexico, in charge of the office.

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At last we find a reasonably legitimate excuse for exposing our readers to a "pretty girl" picture. Miss Rosemary La Planche, above, is reported by the Associated Press to have been selected by a New Guinea army detachment as "Miss Mosquito Junction of 1943." Her equipment, in addition to a scepter, includes mosquito net and spray gun.

Announces Post-War Plans

Gallowhur Chemical Corp., New York and Windsor, Vt., parent company of the manufacturers of "Skol" and "Skat," insect repellent, has pledged through its president, George Gallowhur, to increase its payrolls 25 per cent after the war by hiring veterans returning from the armed forces. All production facilities will be located at Windsor when hostilities cease, Mr. Gallowhur said. The plan provides also for the participation of employees in net profits over and above salaries and wages, subject to Government approval, in addition to free insurance, hospitalization and retirement benefits already provided. The war veterans engaged by the company will be entitled to the same benefits.

Dubey Joins Stanco

A. E. Dubey, Jr., has become associated with Stanco, Inc., New York, in the sales department of the white oil and petrolatum division. Mr. Dubey was previously connected with the Pennsylvania Refining Co. in New York, and prior to that was associated with the sale of perfuming materials and drug products on the eastern seaboard.

Entomologists Eiect Essig

Dr. E. O. Essig of the University of California, was elected president of the American Association of Economic Entomologists at the recent annual meeting of the organization in Columbus, Ohio. Dr. C. E. Mickel of the University of Minnesota was elected president of the Entomological Society of America which met concurrently.

Asks Chlorine Bleach Control

A bill was introduced in the Rhode Island Legislature Jan. 13 which would establish minimum amounts of chemicals used in household ammonia and chlorinated bleaching fluids. The proposed legislation was submitted by Representative Leon W. Brower, who said that because no legal standards have been required in the past, the active ingredients in such products have shown a wide variation. The bill would fix the actual ammonia content in household ammonia at 8 per cent, and the available chlorine content of chlorinated bleaching fluids at 2½ per cent. It would also forbid the sale for household use of caustic potash, caustic soda or lye or any preparation containing these chemicals in concentration of 10 per cent or more of caustic, or any oxalic acid or salt containing the equivalent of 10 per cent or more of oxalic acid, or any ammonia water in concentration of 5 per cent or more unless the container is clearly marked "poison" and prescribes an appropriate antidote. Manufacture of artificially colored chlorinated bleaching and disinfecting fluids is also forbidden. The measure names the State Department of Health as enforcing agency, and fixes at $100 the maximum fine for single violations.

San Diego Janitor Supply Moves

San Diego Janitor Supply & Chemical Co., San Diego, Cal., recently moved on the same street to 1020 B Street. The company's telephone number remains: Main 5358.

Announces Address Change

Newark Leather Finish Co., manufacturers of leather finishes, 126 E. Kinney Street, Newark, N. J., are now located at 8 Wilhelm St., Harrison, N. J.

We announce development of new type soap colors

PYLAKLORS

They have good fastness to alkali, light, tin, ageing.

The following shades are already available:

Bright Green	Dark Brown
Olive Green	Palm Green
Yellow	Golden Brown
True Blue	Violet

It will pay you to send for testing samples.

PYLAM PRODUCTS CO., INC.

Manufacturing Chemists, Importers, Exporters

799 Greenwich St. New York City

Cable Address: "Pylamco"

Peck's OIL SOAPS

DELAYS . . . In spite of war demands, raw material and other difficulties, PECK'S PRODUCTS is still doing its utmost to supply promptly the needs of its regular customers. Delays in delivery are beyond our control, and we ask our old customers to bear with us under present conditions.

• • • • •

PECK'S Oil Soaps and other soap specialties, disinfectants, floor waxes . . . a full line of sanitary specialties manufactured by PECK for sanitary specialists.

Peck's 5224-40 NORTH 2nd ST., ST. LOUIS, MO.
NEW YORK . . . . KANSAS CITY
PRODUCTS COMPANY

Everything in Soaps, Disinfectants, Waxes, Etc.

CROSBY
THE MARK OF QUALITY

PALE WOOD

ROSINS

They will help the soapmaker "stretch" his fats.

CROSBY NAVAL STORES, INC.
PICAYUNE, MISSISSIPPI

PERFUMERS

BASIC MATERIALS

Burton Bush

We specialize in originating products to meet unusual perfume requirements for the soap and sanitary chemical industry.

•

BUSH AROMATICS, Inc.
136 Liberty Street New York 6, N. Y.

The group attending the Eighth Annual Pest Control Operators Conference, held at Purdue University, Lafayette, Ind., Jan. 17, 18, 19 and 20.

8th Purdue PCO Conference

The Eighth annual Pest Control Operators Conference was held at Purdue University, Lafayette, Ind., January 17-20, with 160 persons in attendance. As in previous years Prof. J. J. Davis was in general charge of the conference and supervised a series of talks on insects and insect control problems by members of the Purdue staff and experts from the industry. Among the talks of particular interest was one by George Elliott, president of the National Pest Control Association, who discussed "Elusive Irritations" referring to those difficult problems of insectaphobia or insect hallucinations which sometimes confront the PCO.

Revise Coloration Bill

The proposed amendment to the Insecticide Act of 1910 requiring the coloration of poisonous white powder insecticides has recently been further revised to meet some of the objections advanced at hearings last month. The modified measure is now reported under consideration by a sub-committee. Under the revised draft materials are exempt from the coloration requirement where the Secretary of Agriculture determines that coloring is unnecessary for the protection of public health, where it is shown that coloring would be impracticable, and where the products are to be used for manufacturing or noninsecticidal or nonfungicidal use.

Prentiss a Major

Richard J. Prentiss, formerly of R. J. Prentiss & Co., New York, on leave of absence since shortly after Pearl Harbor for service with the Sanitary Division, Medical Corps, U. S. Army, has recently been advanced to the rank of Major. Major Prentiss is stationed in Washington attached to the office of the Surgeon General.

Rebstock Joins Hercules

J. B. Rebstock, formerly a medical entomologist with Douglas Aircraft Co., has been appointed as an entomologist with the Naval Stores Department of Hercules Powder Co., Wilmington, Del. He will work on the company's insecticide chemicals. He recently returned to this country from Eritrea, British East Africa.

TOXICITY STUDIES

(*From Page* 109)

representative group of unselected subjects will respond to conditions of actual use when placed in a chamber exposed to the material for regulated periods of time over a definite period. Questions which have been answered by the laboratory tests are for the species of animals used. In the case of man the doses must be assumed by suitable calculations and guided by the knowledge of those acquainted with toxicological work concerning the tendency for the reactions in certain organs or systems in the laboratory animals to be comparable to the reaction of similar organs or systems in man. When this is all complete and the results obtained justify a conclusion of relative non-toxicity, then the insecticide may be safely placed on the market for use by humans or on animals.

In conclusion, may I state that the studies included in this report are representative of those which are done in order to determine toxicities. It must be remembered that special uses or applications of a substance may require special studies not mentioned here in order to determine toxicity. This, however, does not seem to be the case with insecticides.

AVAILABLE WITHOUT PRIORITIES

FILTRABLEND-S

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READY-MADE BASE
FOR SOLUBLE OILS

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PETROLEUM SPECIALTIES, INC.
400 MADISON AVENUE
NEW YORK 17

BRAID-O-PAD
FOR FLOOR MACHINES
A "Must" for Floor Maintenance
BRAID-O-PAD has steel wool strands running in all directions, and these strands are continually presenting fresh cutting surfaces. During the entire life of this pad, there is no loss of efficiency. This is because the pad retains its original shape and the braided strands of steel wool remain in the same relation to each other at all times during its use.
AMERICAN STEEL WOOL MFG. CO. INC.
42-24 ORCHARD ST. The Pioneer Steel Wool Manufacturer LONG ISLAND CITY, N.Y.

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Sanitary Supply Houses—

PER-MO
RAT and MICE EXTERMINATING
"LIQUID"

This tested exterminator is fatal to rodents. Can be used in liquid form or on baits. Keep it in stock and sell it to your regular customers with other sanitary supplies. "Per-Mo" is a profitable item!

PER-MO
MOTHPROOFING LIQUID

Let your customers do their own mothproofing with "Per-Mo." The Guaranteed Mothproof Liquid. It acts like a colorless dye in impregnating fabrics, has no odor and will not spot or stain. Literature and Full Particulars first letter.

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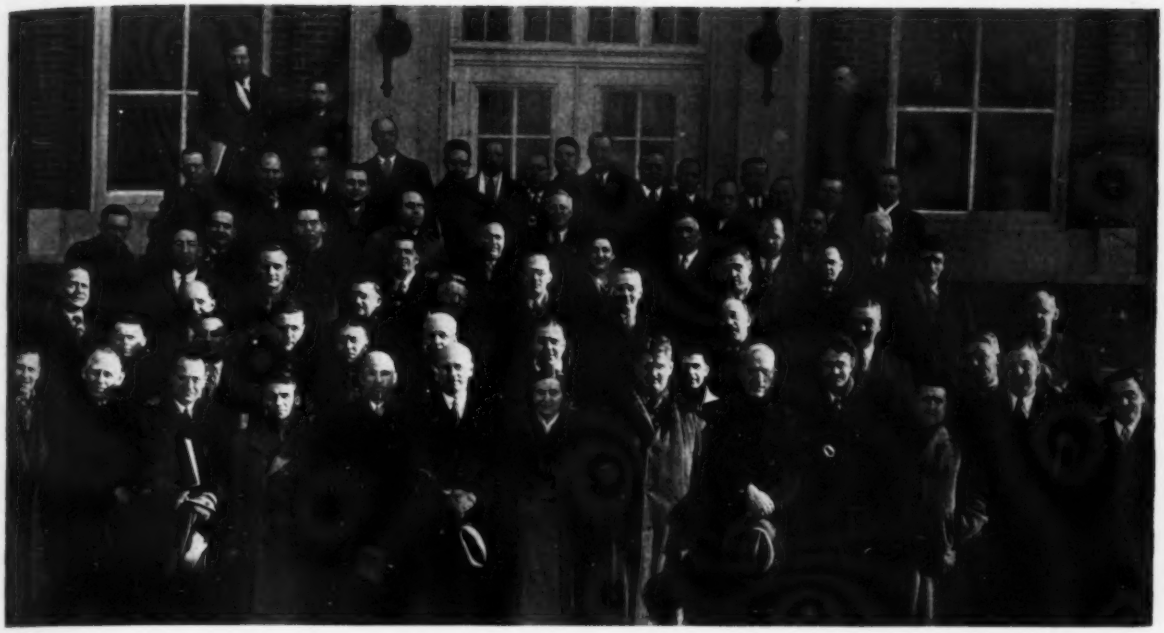
DO you need a man with over ten years' experience in advertising, sales promotion and publicity in and about the field of soaps, glycerine, cosmetics, foods, beverages, paint, varnish, inks, and chemicals?

Well-rounded experience assuring a background that may be of value to you in making plans *now* to push the sale of your products after the war. Interested only in connection with manufacturer or other industrial organization. For further details, address

Box No. 650
Care SOAP & SANITARY CHEMICALS
254 West 31st Street New York



Part of the 100 registrants at the Fifth Annual PCO Conference held at Massachusetts State College, Amherst, Massachusetts, Jan. 10, 11 and 12

Honor Sonneborn Head

Dr. Ferdinand Sonneborn, president of L. Sonneborn Sons, Inc., New York, was honored by employees of the company at a luncheon, Jan. 10, at the Waldorf-Astoria Hotel, New York, marking his 70th birthday and commemorating Dr. Sonneborn's founding of the company 40 years ago. Dr. Sonneborn, a native of Germany, was educated there and in Switzerland, came to the United States in 1904. He founded the firm of oil refiners and manufacturing chemists, which he has headed since its inception in 1904.

DR. FERDINAND SONNEBORN

Wis. P.C.O. Meeting Held

A special meeting of the pest control industry of Wisconsin, sponsored by the Milwaukee Pest Control Association, was held Jan. 22, at the Plankinton Hotel, Milwaukee. At the morning session of the meeting, William O. Buettner, secretary of the National Pest Control Association, spoke on "Critical Materials, Manpower Rationing, and Legislation." He was followed by George Elliot, president of NPCA, whose topic was "Outlook of Industry for 1944." Harry J. Hammond, president of the Milwaukee Pest Control Association, presided at the luncheon and introduced Mr. Buettner and Mr. Elliot, who spoke on the work of NPCA. Following the films: "Insects and Rodents Enemies of Man" and "Fumigation by Pest Control Operators," Dr. C. L. Fluke, professor of Entomology, University of Wisconsin; S. T. Brown, State Board of Health; Dr. E. R. Krumbiegel, Milwaukee Health Commissioner; E. L. Chambers, State Entomologist; J. A. Lippert, Milwaukee Building Owners and Managers Assn., and F. E. Garlough, U. S. Dept. of the Interior addressed the afternoon session.

Prominent Specialty Co. Moves

Prominent Specialty Co., New York, recently moved to 69 Third Ave., New York 3. The company's new telephone number is Gramercy 3-0077.

GERMICIDAL PERFORMANCE

(*From Page* 105)

those formulated with certain "lower-powered" synthetic phenol derivatives were impaired in their antibacterial activity to a much lesser extent than certain "high-powered" preparations of synthetic phenolic or quaternary ammonium derivation.

These findings lead to the conclusion that, under comparable conditions, disinfectant solutions of the correct strength made from "low-powered" materials possess more available antibacterial potency than those obtained from "high-powered" materials.

Several pertinent theoretical and methodological aspects also were emphasized.

References

(1) Bechhold and Ehrlich; Zeitschr. f. physiol. Chem. 46, 173 (1906).

(2) Laubenheimer; Phenol and seine Derivate als Desinfektionsmittel 1909.

(3) Klarmann, Shternov and Von Wowern; J. of Bacteriol. 17, 423 (1929). Klarmann and Von Wowern; J. Amer. Chem. Soc. 15, 605 (1929.

(4) Klarmann, SOAP and SANITARY CHEMICALS, July, 1943, p. 97, 99.

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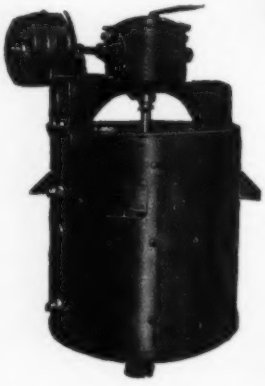

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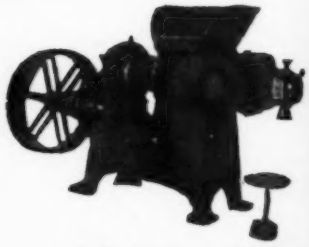

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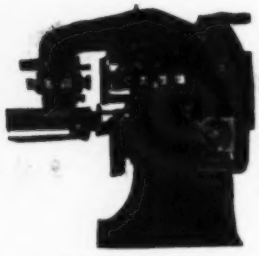
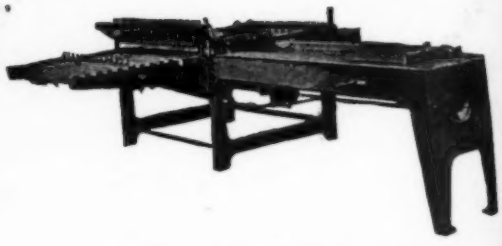


4 JONES AUTOMATIC combination laundry and toilet soap presses. All complete and in perfect condition.



2 Automatic Power Soap Cutting Tables.

INVESTIGATE THESE SPECIAL BARGAINS

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Johnson Automatic Soap Chip Filling, Weighing and Sealing Machines for 2 lb. and 5 lb. Packages guaranteed in perfect condition.

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ADDITIONAL REBUILT SOAP MACHINERY

All used equipment rebuilt in our own shops and guaranteed first class condition.

H-A, 1500, 3000, 4000, 5000 lbs. capacity. Steam Jacketed Crutchers.
Dopp Steam Jacketed Crutchers, 1000, 1200, 1500 lbs. and 800 gals. capacity.
Ralston Automatic Soap Presses.
Scouring Soap Presses.
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2, 3, 4, 5 and 6 roll Granite Toilet Soap Mills.
H-A 4 and 5 roll Steel Mills.
H-A Automatic and Hand-Power slabbers.
Proctor & Schwartz Bar Soap Dryers.
Blanchard No. 10-A and No. 14 Soap Powder Mills.
J. H. Day Jaw Soap Crusher.
H-A 6, 8 and 10 inch Single Screw Plodders.
Allbright-Nell 10 inch Plodders.
Filling and Weighing Machine for Flakes, Powders, etc.
Steel Soap frames, all sizes.
Steam Jacketed Soap Remelters.
Automatic Soap Wrapping Machines.
Glycerin Evaporators, Pumps.
Sperry Cast Iron Square Filter Presses, 10, 12, 18, 24, 30 and 36 inch.
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Gedge-Gray Mixers, 25 to 6000 lbs. capacity, with and without Sifter Tops.
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Proctor & Schwartz large roll Soap Chip Dryers complete.
Doll Steam Jacketed Soap Crutchers, 1000, 1200 and 1350 lbs. capacity.
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All types and sizes—Tanks and Kettles.
Ralston and H-A Automatic Cutting Tables.
Soap Dies for Foot and Automatic Presses.
Broughton Soap Powder Mixers.
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National Filling and Weighing Machines.

Send us a list of your surplus equipment— we buy separate units or complete plants.

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Our staff of chemists, engineers and bacteriologists with laboratories for analysis, research, physical testing and bacteriology are prepared to render you

Every Form of Chemical Service

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Contracting — Consulting

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DRUGS—ESSENTIAL OILS — SOAP

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SKINNER & SHERMAN, INC.

246 Stuart Street Boston, Mass.

Bacteriologists and Chemists

Disinfectants tested for Phenol Coefficient. Toxicity Index determined by chick embryo method of Salle. Antiseptics tested by agar cup plate and other standard methods.

Chemical Analyses and Tests of All Kinds

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Classified Advertising — All classified advertisements will be charged for at the rate of ten cents per word, $2.00 minimum, except those of individuals seeking employment where the rate is five cents per word, $1.00 minimum. Address all replies to Classified Advertisements with Box Number, care of *Soap & Sanitary Chemicals,* 254 West 31st St., New York.

Positions Wanted

Entomologist: Man with eight years' practical experience with one of the largest manufacturers of household, garden and livestock insecticides including preparation of labels, booklets and other sales material, open for new connection with progressive insecticide manufacturer. Capable taking full charge entomological laboratory and research and of giving practical aid to sales department. For further details, communicate with Box No. 646, care *Soap & Sanitary Chemicals.*

Salesman desires sanitation chemicals and brushes for N. Y. City. Guaranteed drawing. Address Box No. 657, care *Soap & Sanitary Chemicals.*

Chemist: Recent graduate of eastern college with entomological experience, desires connection with insecticide or allied manufacturer. For further details, address Box No. 645, care *Soap & Sanitary Chemicals.*

Soapmaker — familiar with the manufacture of all kinds of soap; 30 years' experience; desires change of position with reliable firm on Pacific Coast. Can take full charge of plant. Address Box No. 652, care *Soap & Sanitary Chemicals.*

Production Manager: Man, graduate chemist, 33 years, 2A draft, 9 years production manager, factory superintendent for large manufacturer toilet preparations, medicines, food products, spices and insecticides, desires new connection particularly interested in future opportunity. Fine record, best references. Address Box No. 660, care *Soap & Sanitary Chemicals.*

Positions Open

Entomologist Wanted — Major Manufacturer-Marketer with continent-wide operations and large research facilities wants to employ a practical Entomologist, preferably with field experience on truck crops. Must be a college graduate with a good personality, and must be free to travel. This is a permanent connection, at a good salary. In your reply, state your experience, education, including a list of college courses completed, age, draft status, and the salary you expect. Replies strictly confidential. If employed in essential war work, availability certificate required; if already working at your highest skill, do not apply. Box No. 644, care *Soap & Sanitary Chemicals.*

Simple — Practical — Durable — Inexpensive

The 4 in 1 Applicator consists of but three parts:

1—A top quality sleeve-like wool pad;
2—A one piece hardwood block that needs no bolts, no nuts, no metal fastenings of any kind;
3—A hardwood threaded handle.

The 4 in 1 Applicator gives you more square inches of usable wool pad for your money.
The 4 in 1 Applicator insures perfect application of your floor waxes, seals and other finishes for every type of floor.

Profitable to Use — Profitable to Sell

Used and recommended by maintenance experts nationwide.

American Standard Manufacturing Company
2509-2513 South Green Street Chicago 8, Ill.

Buy War Bonds and Bring Victory In 1944

1—Dopp Vertical Jacketed Soap Crutcher, 1500#.
3—Ralston Automatic Soap Presses.
4—Pkge. Machy. Co. Soap Wrapping Machines, Type N1.
1—Horizontal Soap Amalgamator, 1500#.
60—Assorted Bronze Soap Dies.
1—6-Knife Soap Chipper.
2—Hersey 1200# Horizontal Unjacketed Crutchers.
1—Houchin 10" Jumbo Plodder.
1—Broughton 1500# Mixer; 1—450#.
1—Crosby Foot Press.

Crutchers	Foot and Automatic Soap Presses	Filter Presses
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We buy your idle machinery—Send us a list.

GREATER *Kills* *with* **CERTOX**
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Rodent Seed, Ant Jelly, Arsenic, Carbolic, Pyrethrum, Cresylic, Red Squill, Derris Powder, and other effective chemicals that do a thorough job for the Pest Controller. The quality of CERTOX products remains unaffected by the national emergency. Prices, too, are near normal.

YOUR GUARANTEE:

All CERTOX products are manufactured according to exacting specifications under personal supervision of I. H. LUTTAN, B. S. A., Entomologist.

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YORK CHEMICAL CO.
Suppliers of Complete Exterminating Chemicals.
424 West 18th Street, New York, N.Y.

SOPAC
SAFETY HAND SOAP
(Powdered)

A money-maker for alert jobbers calling on industrial plants and institutions.

★ Hygienically safe—fast and economical
★ Non-abrasive, vegetable oil base
★ Soothing with fine after-effect
★ Tested and approved by millions of safe washups in plants throughout the country
★ Unsurpassed quality and value
★ Free samples available for established jobbers

Other items in the Skotch Products line include dish-washing compounds, medium and heavy duty cleaners, liquid soap concentrate, special formula compounds and powdered soap dispensers.

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Recognizing its strategic value in the control of certain insects and pests, the use of Rotenone has been restricted to the needs of the Armed Forces, the protection of a limited number of vital agricultural crops, and the control of warble fly on cattle.

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Specialists In Rotenone Roots and Rotenone Products

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Wanted — A practical man or chemist who is qualified to make and produce liquid wax emulsions for floor polish, shoe polish and various other uses. Work will be extremely light and therefore anyone of considerable age or partly physically handicapped will be useful. Address full details in confidence to Box No. 656, care *Soap & Sanitary Chemicals.*

Insecticides: Man with some years experience in the sale of insecticide materials to manufacturers of both the agricultural and household fields is wanted by an old and well-known chemical manufacturer. There is a good opportunity here for a man with education and experience and a following in the insecticide industry. Send replies to Box No. 643, care *Soap & Sanitary Chemicals.*

Wanted: Soap maker with actual kettle experience making liquid and paste potash soaps. Industrial soap manufacturing plant located in Michigan. Steady work, good pay. Address Box No. 659, care *Soap & Sanitary Chemicals.*

Miscellaneous

For Sale: One soap plodder; one cutting table; one frame cutter-200 frames. Address Box No. 661, care *Soap & Sanitary Chemicals.*

For Sale: 2—5 Roll water cooled inclined steel roller mills, 16" dia-x 40" face. Houchin-Aiken Foot Presses; Soap Frames; Cutting Tables; Plodders, 12 x 30 and 16 x 40 Three Roll Water Cooled Steel Mills; 4 Roll Stone Mills; Dryers; Chippers; Powder Fillers; Mixers; Grinders, Filter Presses; Disc Filters; Pumps, etc. Send for Soap Bulletin No. 402. We Buy Your Surplus Equipment for Cash. Stein Equipment Corp., 426 Broome Street, New York City, 13.

Floor Brushes — We manufacture a very complete line. Catalogue sent upon request. Flour City Brush Company, Minneapolis, Minn., or Pacific Coast Brush Co., Los Angeles, Calif.

Wanted — popular price toilet soap line that can be sold to syndicate and chain drug departments, —will handle accounts. Address details Box No. 653, care *Soap & Sanitary Chemicals.*

For Sale—Approximately 100,-000 3⅞" diameter cardboard slip covers. Reply Box No. 651, care *Soap & Sanitary Chemicals.*

Soap Brokerage Business for Sale. On account of death of John A. McDermott on October 24, 1943, the undersigned offers his well-established soap brokerage business for sale. Office and business is at 187 North LaSalle Street, Chicago. Please make inquiries in writing. Katherine B. McDermott, Administrator, 187 North LaSalle Street, Chicago, Ill. Phone Ran. 2460.

Will Purchase Immediately — Pneumatic Packaging Machine, used for chips, powder, cleanser; also dry mixers, chip dryers, crutchers, and automatic soap press. Address Box No. 654, care *Soap & Sanitary Chemicals.*

Plant Wanted: Chemical engineer Ph.D. research and production manager, will buy whole or part of plant for manufacture of detergents, resins, oil and wax compounds. Need jacketed kettles, steam, stir, etc. Address Box No. 655, care *Soap & Sanitary Chemicals.*

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WHETHER your plant meets its quota, or fails, lies largely in *your* hands. Your leadership can put it over—but if you haven't already got a smooth running, hard hitting War Loan Organization at work in your plant, there's not a minute to lose.

Take over the active direction of this drive to meet —*and break*—your plant's quota. And see to it that every one of your associates, from plant superintendent to foreman, goes all-out for Victory!

To meet your plant's quota means that you'll have to hold your present Pay-Roll Deduction Plan payments at their all-time high—plus such additional amounts as your local War Finance Committee has assigned to you. In most cases this will mean the sale of *at least* one $100 bond per worker. It means having a fast-cracking sales organization, geared to reach personally and effectively every individual in your plant. And it means hammering right along until you've reached a 100% record in those *extra* $100 —or better—bonds!

And while you're at it, now's a good time to check those special cases—*growing more numerous every day*—where increased *family* incomes make possible, *and imperative,* far greater than usual investment through your plant's Pay-Roll Deduction Plan. Indeed, so common are the cases of two, three, or even more, wage-earners in a single family, that you'll do well to forget having ever heard of '10%' as a reasonable investment. Why, for thousands of these 'multiple-income' families 10% or 15% represents but a paltry fraction of an investment which should be running at 25%, 50%, or more!

After the way you've gone at your wartime *production* quotas—and topped them every time—you're certainly not going to let anything stand in the way of your plant's breaking its quota for the 4th War Loan! Particularly since all you are being asked to do is to sell your own people the finest investment in the world—*their own share in Victory!*

LET'S ALL BACK THE ATTACK!

This space contributed to Victory by

SOAP & SANITARY CHEMICALS

This is an official U. S. Treasury advertisement—prepared under auspices of Treasury Department and War Advertising Council.

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Every effort is made to keep this index free of errors, but no responsibility is assumed for any omissions.

"Yo' appeal fo' mo' goods touches mah heart, Cuthbert,—but whar is yo' gonner buy after de wah?"

Not forever...

NOT forever will buyers prostrate themselves on the door-mat of your sales department to plead for more and more goods. Eventually, the worm will turn, — and when it does, — the keen edge of returned competition will cut the props from under many a salesman's throne, — and once again will begin the endless trek in search of new customers, new outlets. But regular advertising which you do today will help no end when that time arrives. In the field of soap products, insecticides, sanitary and chemical specialties, we feel that your plans for the future should include regular advertising *now* in

SOAP *and Sanitary Chemicals*
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Member Audit Bureau of Circulations

Tale Ends

AT the recent soap industry meeting in New York, a place card for each person at luncheon carried the following message: "Welcome you saippuakauppias!" Such apparent levity was something of a shock to so staid and dignified a gathering. However, upon turning the card over, the following explanation was found: "Saippuakauppias is a Finnish word meaning soap-maker. It reads the same backwards as forwards." All of which is quite appropriate as it appears that some soapers today don't know whether they are going backward or forward.

* * *

Sign of the times . . . attendance at a recent potash soap manufacturers group meeting was considerably smaller than last year. Interpretation by R. H. Young, chairman of the group, . . . fewer problems this year and an easier trend in the raw material situation.

* * *

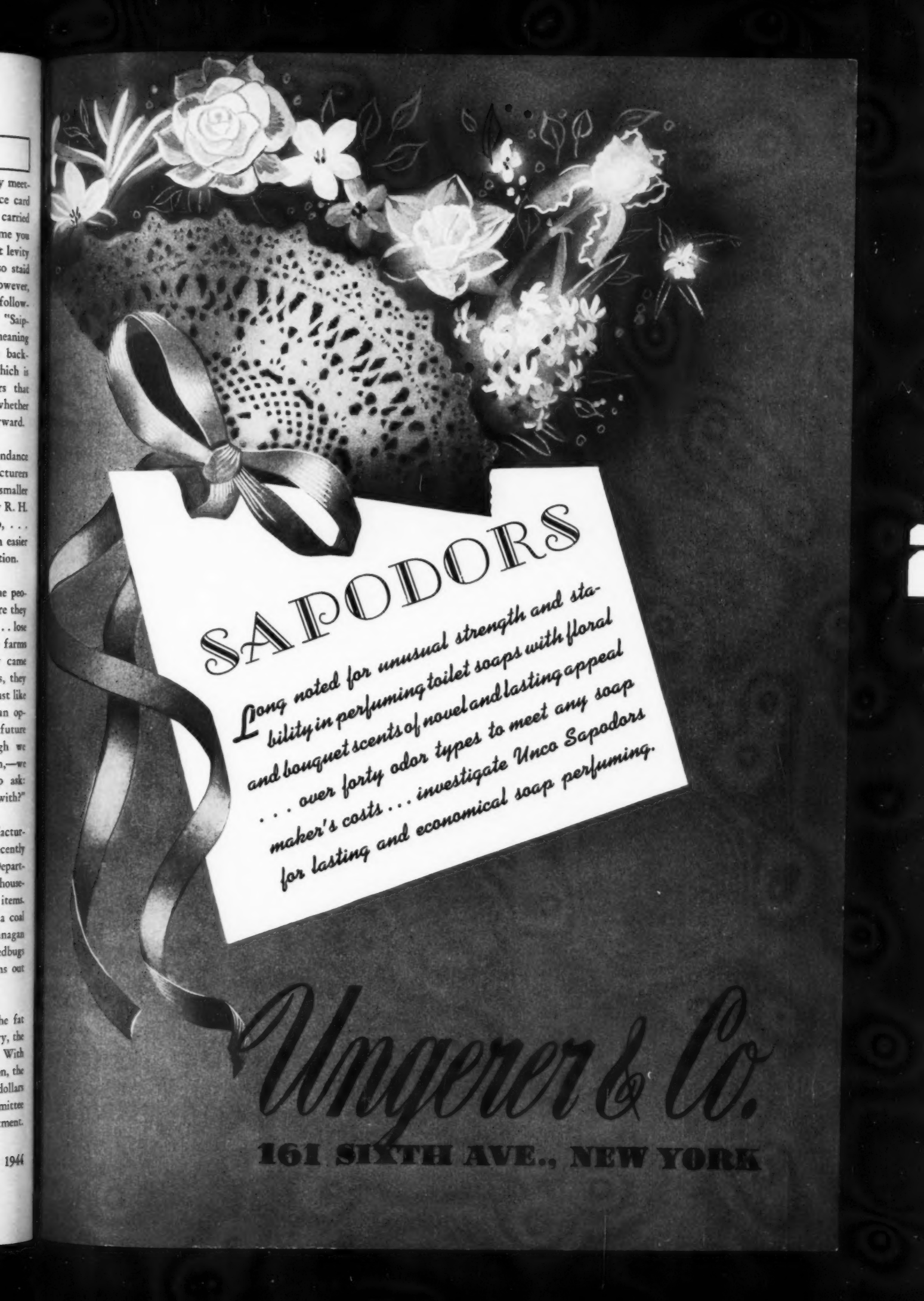
After the war when some people now living in cities . . . where they have learned to use lots of soap . . . lose their jobs and move back to the farms and villages from whence they came to seek riches in city war plants, they will continue to use more soap just like they did in the big city, said an optimist recently in discussing the future of soap consumption. Although we know it is the obvious question,—we are nevertheless constrained to ask: "What are they going to buy it with?"

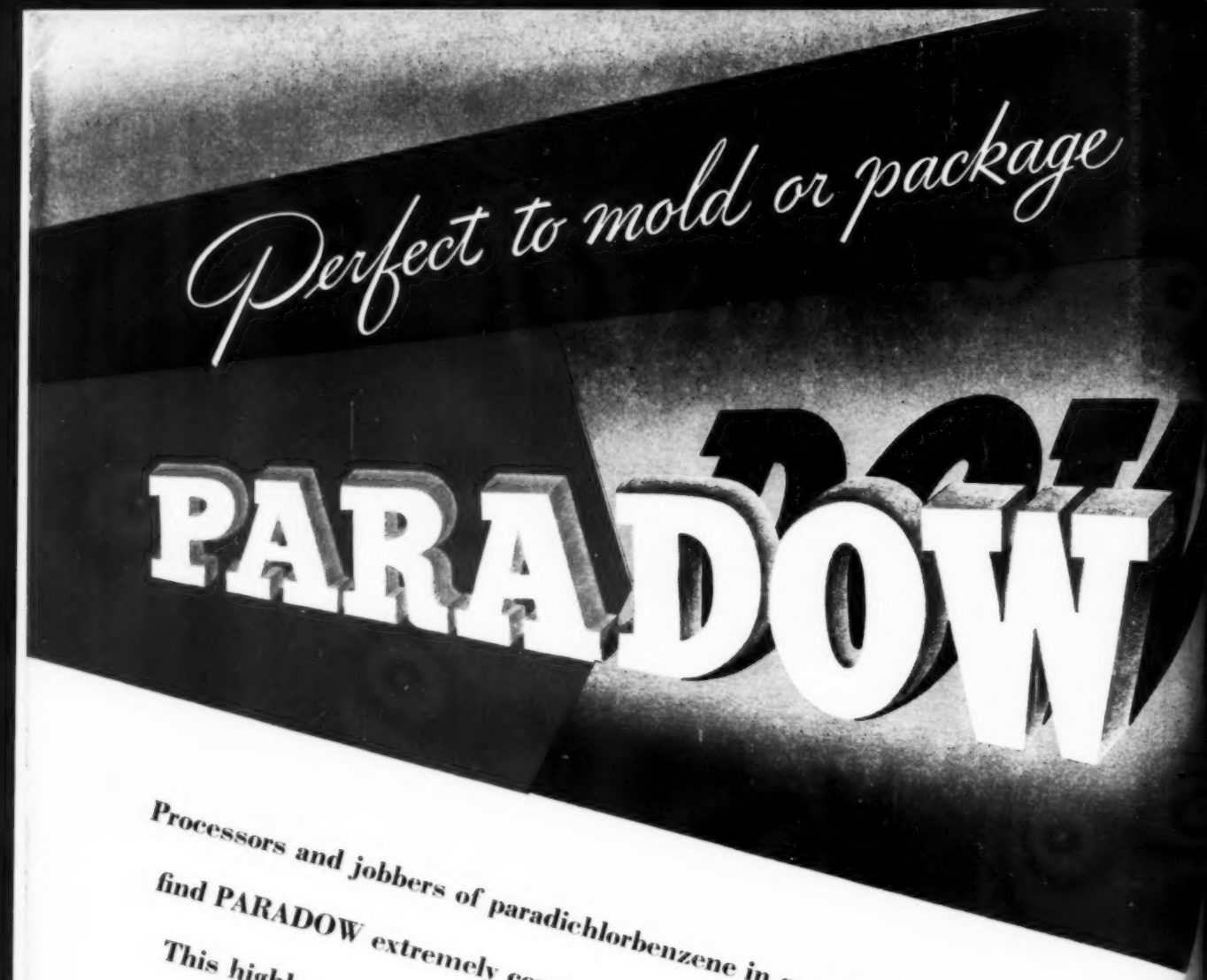
* * *

Some insect spray manufacturers became slightly agitated recently when L. N. Markwood of the Department of Commerce stated that household insecticides are luxury items. About as much of a luxury as a coal shovel, says we. What is Mrs. Flanagan going to do? . . . Catch her bedbugs one by one and beat their brains out with a club?

* * *

Based on the jump in the fat salvage collection rate for January, the campaign is now really rolling. With "points for fats" now in operation, the increase to a million-and-a-half dollars of money to be spent by the committee looks like a mighty good investment.


SAPODORS
Long noted for unusual strength and stability in perfuming toilet soaps with floral and bouquet scents of novel and lasting appeal . . . over forty odor types to meet any soap maker's costs . . . investigate Unco Sapodors for lasting and economical soap perfuming.
Ungerer & Co.
161 SIXTH AVE., NEW YORK



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Propylene Dichloride • *Orthodichlorbenzene* • *Methyl Bromide* • *Chloropicrin, and many more*